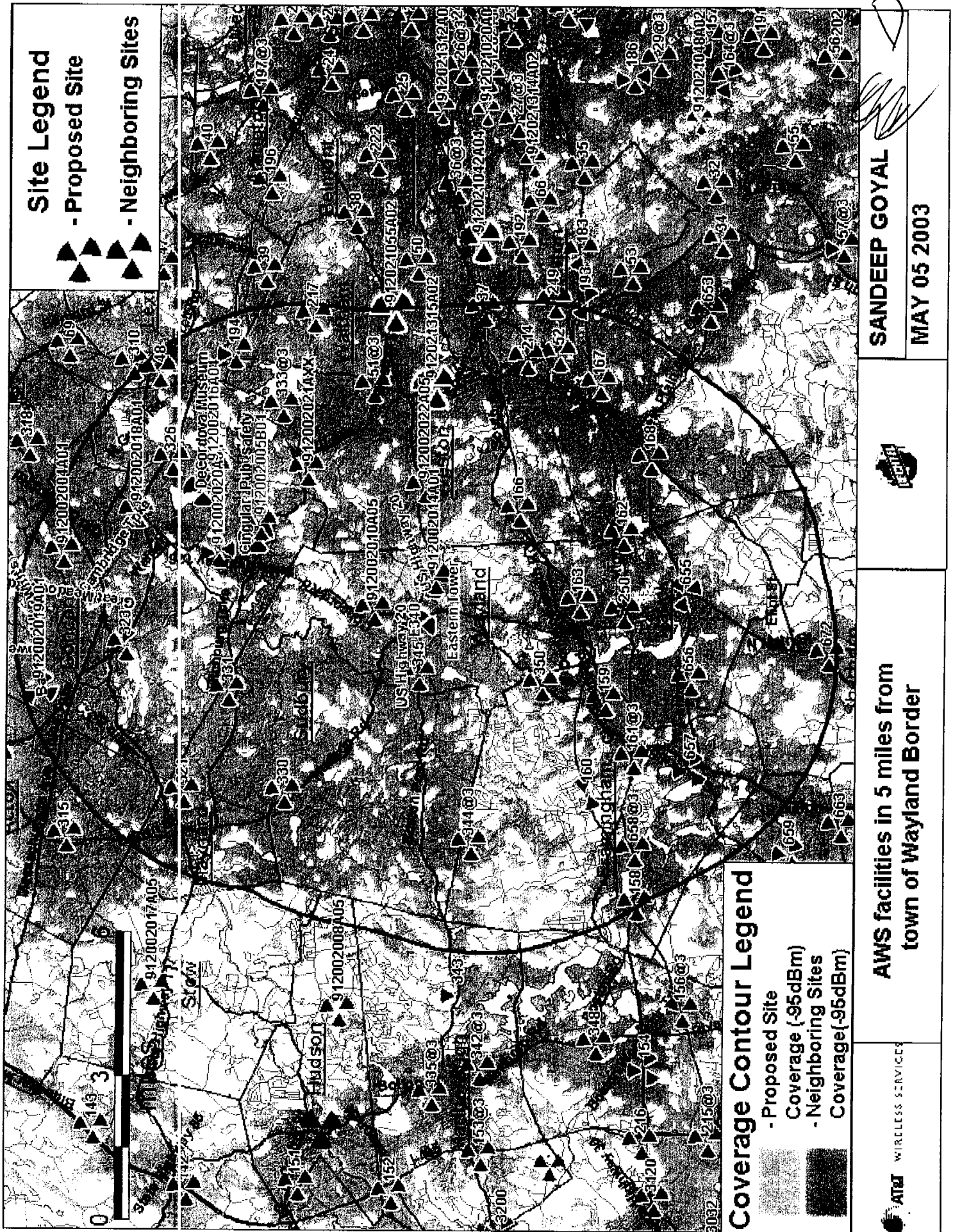
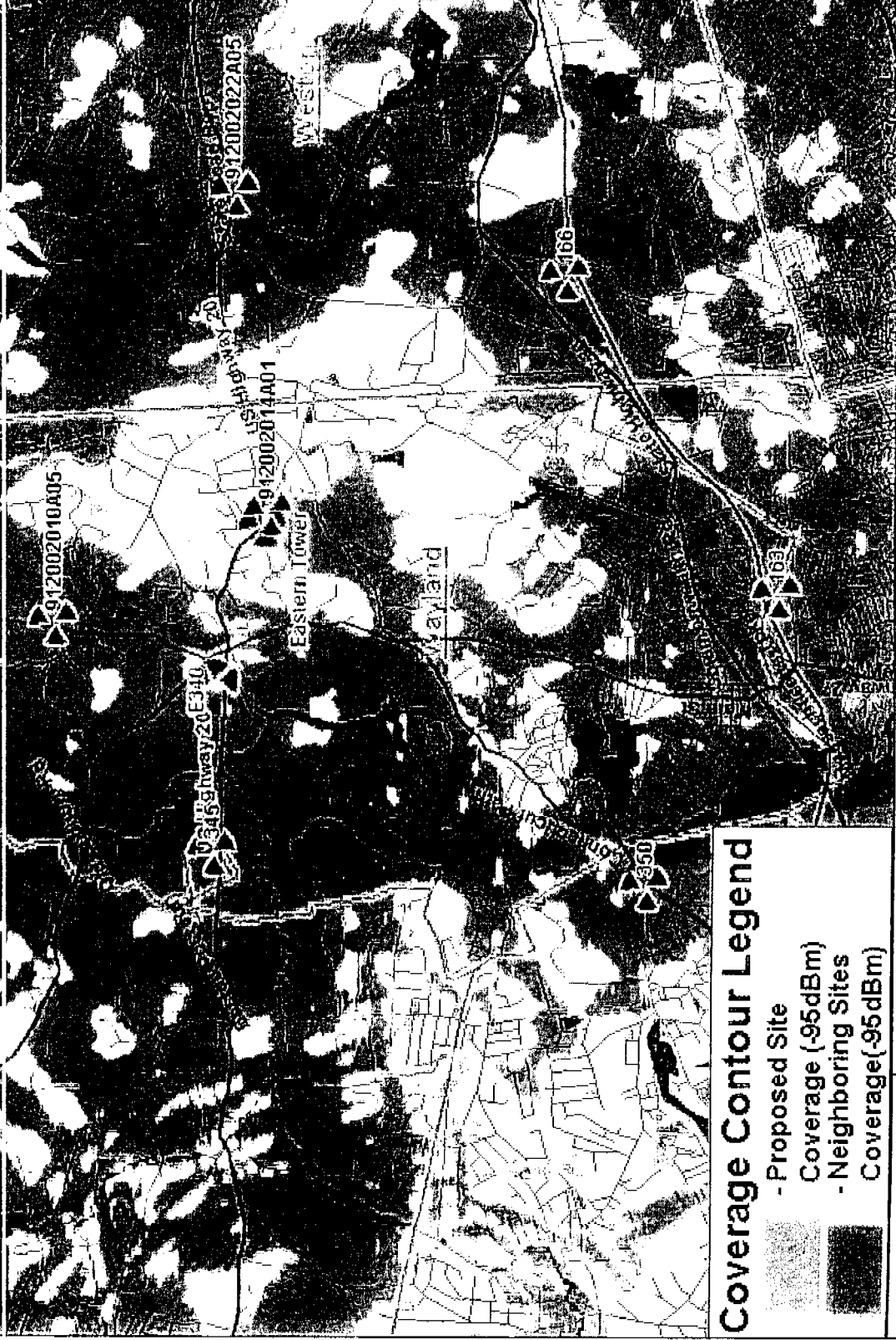


Site ID	RAD Center (ft.)	Latitude	Longitude	Site Name	Site Address	City	State	Status
323	75	42.452222	-71.375556	Emerson Hospital	RT 2	Concord	MA	On Air
912002004A01	85	42.47210000	-71.33890000	Downtown Concord	509 Bedford Street, MA 01742	Concord	MA	Proposed
912002018A01	95	42.450092000	-71.321381000	Concord Mobil Station	22 Concord Turnpike/Rte 2, Concord, MA 01724	Concord	MA	On Air
912002019A01	68	42.477500000	-71.394722000	Annurshac Hill	40Y, Annurshac Hill Road	Concord	MA	Proposed
158	75.5	42.295833	-71.474444	Edgewater Hills Apartments	1640 Worcester	Framingham	MA	On Air
159	101.7	42.307222	-71.392222	Meditech Framingham	550 Cochituate Road	Framingham	MA	On Air
160	32.8	42.311667	-71.429444	Framing Service Area	Westbound on Mass Pike, between exits 13, 12	Framingham	MA	On Air
161	52.5	42.29805556	-71.41527778	Crown Building	463 Worcester Rd.	Framingham	MA	On Air
344	118	42.3465	-71.45211111	Nobscot Hill AT&T	Brimstone Lane	Framingham	MA	On Air
350	79	42.326667	-71.386667	Post Edison @ Riverpath	Old Connecticut Path	Framingham	MA	On Air
657	82	42.28083333	-71.41805556	Grace Cong Church	73 Union Avenue	Framingham	MA	On Air
658	79	42.29722222	-71.45222222	Oak Terrace Condo	1321 Worcester Rd.	Framingham	MA	On Air
48	59	42.444722	-71.263889	One Cranberry Hill	750 Marrett Road	Lexington	MA	On Air
194	90	42.422222	-71.255556	Stride-Rite	191 Spring Street	Lexington	MA	On Air
310	80	42.45269444	-71.26122222	BECO Lexington	Wood St	Lexington	MA	On Air
912002005B01(Alt)	90	42.412778000	-71.325278000	DPW Site - Verizon	Lewis Street, Lincoln, MA	Lincoln	MA	Proposed(Alt)
Cingular Pub Safety	95	42.413750000	-71.329861000	Cingular Public Safety Monopole	169 Lincoln Street	Lincoln	MA	Proposed
912002020A01(Alt)	80	42.413361000	-71.329695000	110 Concord Road / Eastern (McCart)	110 Concord Road	Lincoln	MA	Proposed(Alt)
912002016A04(Alt)	50	42.427388000	-71.303694000	Bemis Hall	15 Bedford, Lincoln, MA	Lincoln	MA	Proposed(Alt)
Decordova Museum	65	42.430899000	-71.311483000	Decordova Museum	Sandy Pond Road	Lincoln	MA	Proposed
326	70	42.440278	-71.3	Tracey's Service Station	131 Cambridge St	Lincoln	MA	On Air
321	187	42.43038889	-71.45405556	Clock Tower Place	146 Main St	Maynard	MA	On Air
163	125	42.316111	-71.3525	Mitchell Property	70 Pine Street	Natick	MA	On Air
250	59	42.3025	-71.355833	Whitney Place	721 Worcester Street	Natick	MA	On Air
655	131.2	42.28405	-71.34684722	First Congregational	2 Main Street	Natick	MA	On Air
656	131.2	42.28194444	-71.3825	BECO Natick	West Central Street	Natick	MA	On Air
214	78	42.33425	-71.25427778	Newton Holiday Inn	399 Grove Street	Newton	MA	On Air
37	115	42.347778	-71.235	Auburndale Tower	1354 Washington Street	W. Newton	MA	On Air
249	67	42.32659167	-71.23101111	Waban Hardware	1643 Beacon St	Newton	MA	On Air
672	89	42.240833	-71.3703833	Sherborn Parish Church	11 Washington Street	Sherborn	MA	On Air
330	78	42.402772	-71.43361	Willis Hill Water Tank	Maynard Rd.	Sudbury	MA	On Air
331	121	42.420833	-71.393056	Cummings Property	142 North Road	Sudbury	MA	On Air
345	145	42.363858	-71.383947	Sudbury Landfill	Boston Post Road	Sudbury	MA	On Air
51	69	42.38027778	-71.2675	Bear Hill Tower	148 Bear Hill Road	Waltham	MA	On Air
333	55	42.40747222	-71.27663889	Bay Colony	1050 Winter Street	Waltham	MA	On Air
E217	110	42.398889	-71.24	Pinnacle Towers	15 Sachem Street	Waltham	MA	On Air
912021055A02	70	42.375568	-71.237158	Sovereign Bank	One Moody Street	Waltham	MA	On Air
912021315A02	147	42.362469	-71.267333	Parametrics - Waltham	128 Technology Park Drive	Waltham	MA	Proposed
912002010A05	80	42.378056000	-71.358056000	Peace Lutheran Church	107 Concord Road	Wayland	MA	Proposed
912002014A01	85	42.360019000	-71.344644000	Sprint Wayland(Classic Clocks)	135 Boston Post Rd, Wayland, MA	Wayland	MA	Proposed
Eastern Tower (Alt)	120	42.360433000	-71.346150000	Eastern Tower site	137 Boston Post Rd, Wayland, MA	Wayland	MA	Proposed(Alt)
E340 (Alt)	95	42.364083000	-71.364389000	INSTAR Tower No. 112	62 Walnut Street	Wellesley	MA	Proposed(Alt)
52	63	42.32444444	-71.2525	62 Walnut	978 Worcester Street	Wellesley	MA	On Air
162	98.4	42.303611	-71.324722	Wellesley Motor Inn	50 Oakland Street	Wellesley	MA	On Air
167	72	42.31222222	-71.26361111	Mass Bay Community	2 Central Street	Wellesley	MA	On Air
168	138	42.29583333	-71.29361111	Wellesley Congregational	100 Brown Street	Wellesley	MA	On Air
166	72	42.335278	-71.316389	Wightman Tennis Ct	Rte 117, Weston, 1/2 mile from Lincoln Border, MA	Weston	MA	On Air
912002021AXX	80	42.399283000	-71.302317000	Weston Site / Evergreen	180 Boston Post Road	Weston	MA	Proposed (TBD)
912002022A05	87	42.363833000	-71.307806000	Weston Police Station		Weston	MA	Proposed



Site Legend

- Proposed Site
- Neighboring Sites
- Alternate sites



Coverage Contour Legend

- Proposed Site Coverage (-95dBm)
- Neighboring Sites Coverage (-95dBm)

135 Boston Post Road, Wayland, MA



SANDEEP GOYAL

APRIL 07 2003

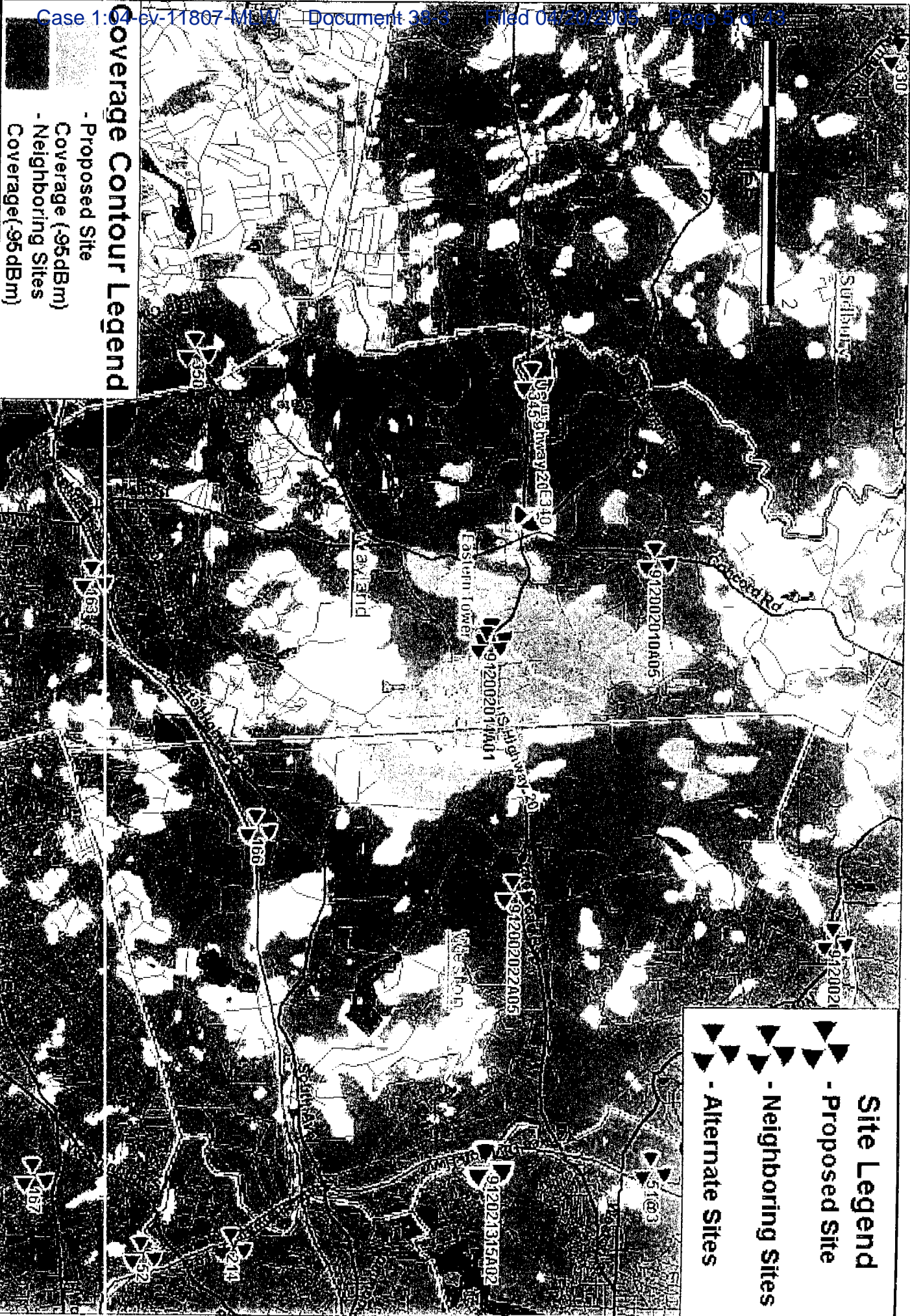


AT&T WIRELESS SERVICES

Eastern tower site, Wayland, MA
Antenna Mounting Height 120'



SANDEEP GOYAL
MAY 05 2003



- Site Legend**
- Proposed Site
 - Neighboring Sites
 - Alternate Sites

Coverage Contour Legend

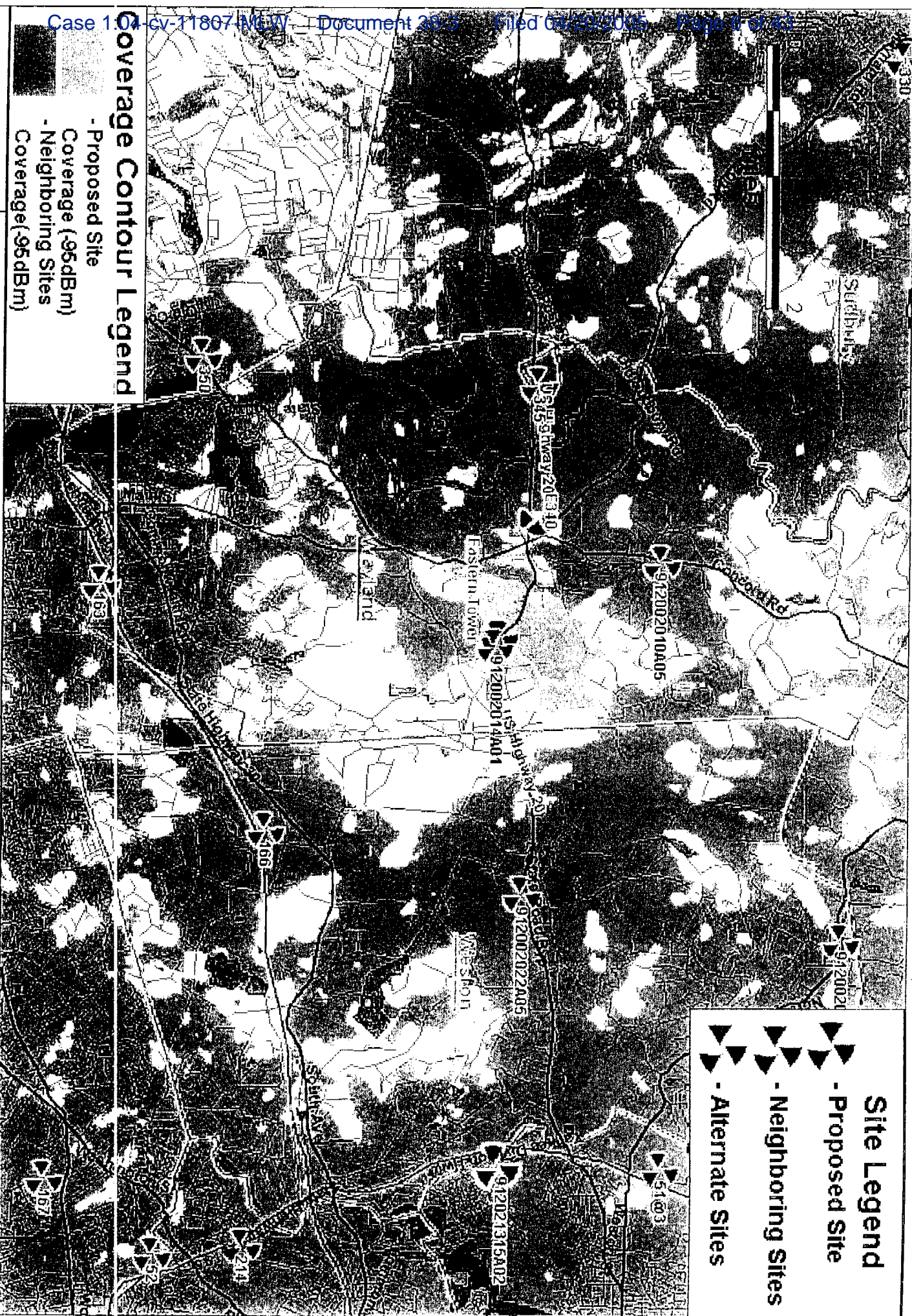
- Proposed Site
- Coverage (95dBm)
- Neighboring Sites
- Coverage(95dBm)

135 Boston Post Road, Wayland, MA
Antenna Mounting Height 110'

AT&T WIRELESS SERVICES



SANDEEP GOYAL
MAY 05 2003



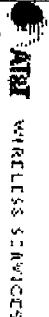
- Site Legend**
- Proposed Site
 - Neighboring Sites
 - Alternate Sites

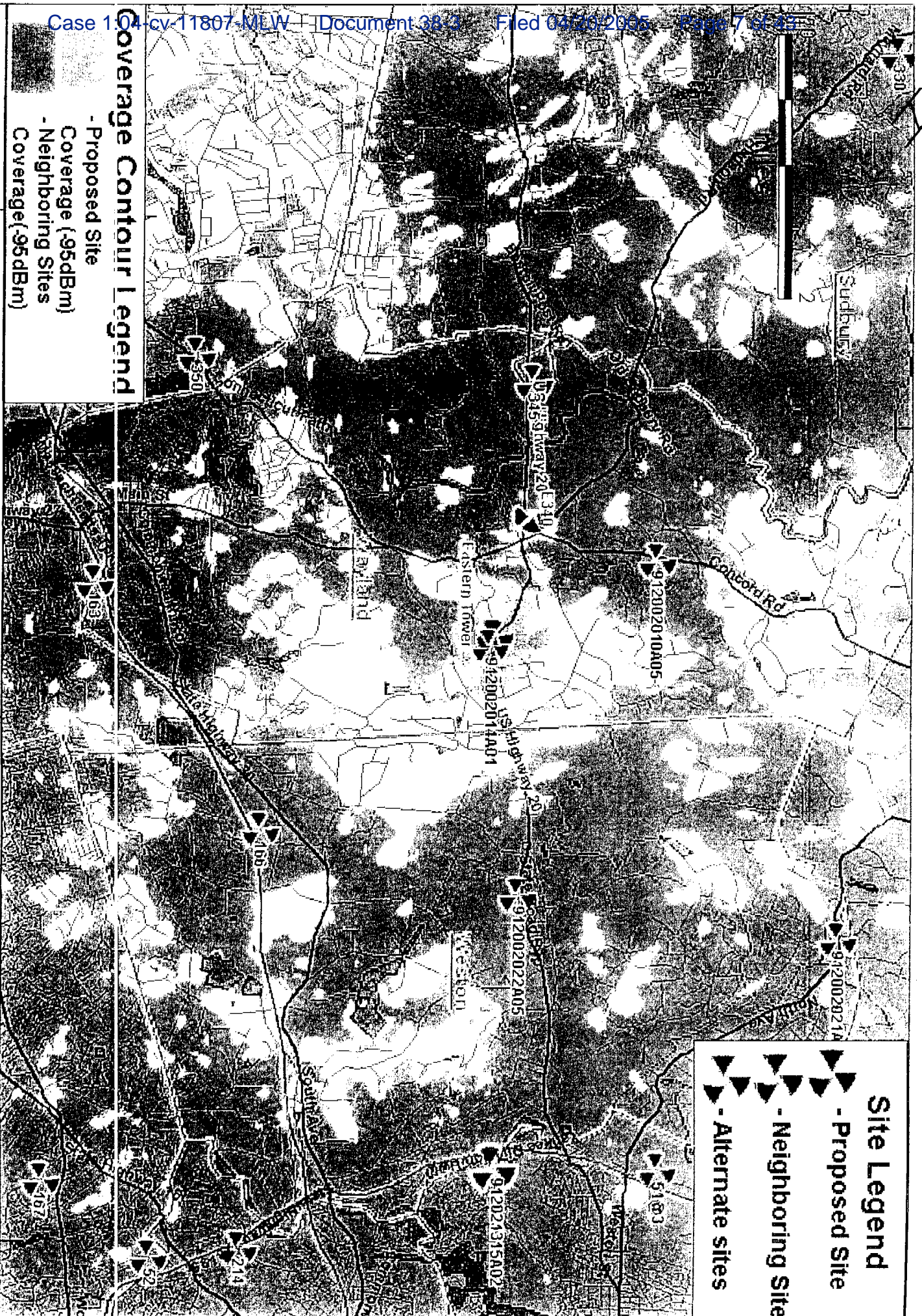
Coverage Contour Legend

- Proposed Site Coverage (95dBm)
- Neighboring Sites Coverage (95dBm)

Eastern tower site, Wayland, MA
Antenna Mounting Height 55'

SANDEEP GOYAL
MAY 05 2003





- Coverage Contour Legend**
- Proposed Site
 - Coverage (.95dBm)
 - Neighboring Sites
 - Coverage (.95dBm)

135 Boston Post Road, Wayland, MA
Antenna Mounting Height: 45'

- Site Legend**
- ▲ - Proposed Site
 - ▲ - Neighboring Sites
 - ▲ - Alternate sites

SANDEEP GOYAL
APRIL 07 2003

April 2001–September 2002 AT&T Wireless Nashua, NH

Sr. Planning Engineer

- Regional 3G RF Liaison tasked with supporting local RF teams and serving as a point of contact for the national RF team, monitoring project activities, and providing technical guidance, regional coordination and information exchange.
- Project Leader on Logan International Airport. Responsible for monitoring and providing guidance to turn-key vendors (Bechtel, Andrew) and securing dark fiber connectivity. Completed vendor bid process and provided a recommendation to management for final decision.
- Generated technical recommendations and RF best practices

1996–April 2001 AT&T Wireless Services Westwood, MA

Lead RF Design Engineer / Sr. RF Engineer

- Provided approval for site design and placement of macrocells, in-building RF distribution systems, microcells, and repeater systems
- Provided leadership and supervision to team of four Design Engineers
- Worked closely with System Development Manager, construction, legal, and site acquisition team to solve construction, zoning, and leasing issues.
- Responsible for regulatory compliance for New England market including E-911, FAA, FCC, and Massachusetts Department of Public Health filings.
- Part of original design team for Boston/Providence market build
- Designed, built, and tested in excess of 75 cell sites
- Provided expert testimony in numerous public hearings

1994–1996 Ameritech Cellular Services Schaumburg, IL

System Performance Engineer

- Responsible for network performance of the core area of Ameritech's Chicago network. Including integrating numerous macrocells and microcells into the system, customer complaint resolution, and system troubleshooting
- Served on team to prepare cellular network for 1996 Democratic National Convention
- Worked on 5ESS switch integration, cell rehomes, and CDPD deployment
- Part of first office application testing team of 8 and 11 KB Lucent CDMA voice coders
- Worked with internal security, customer service, and law enforcement to reduce subscriber fraud and customer phone cloning

Education

- 1990–1994 **Michigan Technological University** Houghton, MI
- B.Sc., Electrical Engineering, Communications Option
- Graduated Cum Laude

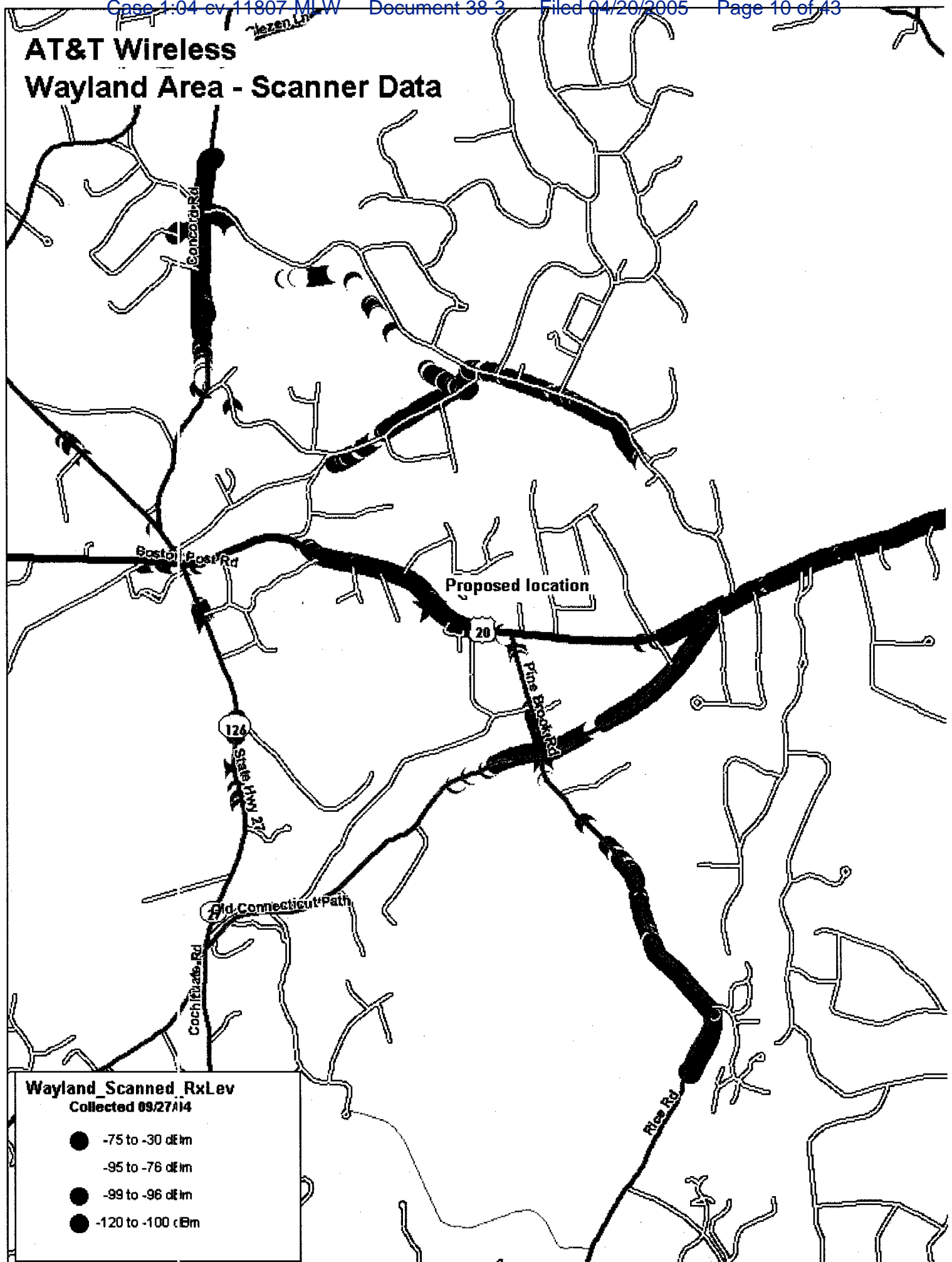
Training

- Ericsson and Lucent networks, expert witness training, graduate course work in Fiber Optics and Electromagnetic Theory, CellCAD and Planet propagation tools, Managing Lawfully, Managing Change, Behavioral Interviewing, Managing the Empowered Employee

AT&T Wireless **Wayland Area - Call Data**



AT&T Wireless Wayland Area - Scanner Data



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BusinessObjects - Drop-counters ell - [joeander]

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DROPS

MA0051C

Time (Date)	Total Seizures	TNDROP	TDISS	TDISQA	TDISTA	TSUD LOS	Drops Other	TDISS DL	TDISS UL	TDISS BL	TDISQA DL	TDISQA UL	TDISQA BL
9/13/2004	1668	50	48	0	0	2	0	3	0	45	0	0	0
9/14/2004	1729	63	63	0	0	0	0	6	2	55	0	0	0
9/15/2004	1869	52	52	0	0	0	0	3	0	49	0	0	0
9/16/2004	1415	65	65	0	0	0	0	3	1	61	0	0	0
9/17/2004	1476	49	48	0	0	1	0	3	0	45	0	0	0
9/18/2004	1095	33	31	1	0	1	0	0	0	31	1	0	0
9/18/2004	1048	27	27	0	0	0	0	1	1	25	0	0	0
9/20/2004	1380	51	50	0	0	1	0	2	0	48	0	0	0
9/21/2004	1837	63	62	0	0	1	0	4	0	58	0	0	0
9/22/2004	1888	61	57	3	0	1	0	1	1	55	3	0	0
9/23/2004	1950	64	59	4	0	1	0	1	0	58	4	0	0
9/24/2004	1768	67	67	0	0	0	0	5	0	62	0	0	0
9/25/2004	2080	56	54	0	0	2	0	4	0	50	0	0	0
9/26/2004	1118	20	19	0	0	1	0	0	0	19	0	0	0
9/27/2004	1607	52	48	0	0	3	1	2	0	46	0	0	0
9/28/2004	1482	64	62	1	0	0	1	4	1	57	1	0	0

Report1

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2:52 PM

BusinessObjects - Drop-counters dell - [joeander]

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DROPS

MA0345B

Time (Date)	Total Seizures	TNDROP	TDISS	TDISQA	TDISTA	TSUD LOS	Drops Other	TDISS DL	TDISS UL	TDISS BL	TDISQA DL	TDISQA UL	TDISQA BL
9/13/2004	1591	37	34	0	0	1	2	1	0	33	0	0	0
9/14/2004	1910	51	48	1	0	1	1	4	1	43	0	1	0
9/15/2004	1861	55	54	1	0	0	0	3	1	50	0	1	0
9/16/2004	1517	59	58	0	0	1	0	1	2	55	0	0	0
9/17/2004	1881	57	54	0	0	3	0	3	0	51	0	0	0
9/18/2004	1130	30	30	0	0	0	0	0	2	28	0	0	0
9/19/2004	1027	33	32	0	0	1	0	0	2	30	0	0	0
9/20/2004	1364	40	34	0	0	5	1	2	4	28	0	0	0
9/21/2004	1623	52	50	0	0	2	0	1	1	48	0	0	0
9/22/2004	1807	53	51	0	0	2	0	3	0	48	0	0	0
9/23/2004	2042	65	64	0	0	1	0	3	0	61	0	0	0
9/24/2004	2156	80	74	0	0	6	0	2	0	72	0	0	0
9/25/2004	1346	41	39	0	0	2	0	1	1	37	0	0	0
9/26/2004	1228	27	26	0	0	0	1	0	0	26	0	0	0
9/27/2004	1534	47	42	0	0	2	3	2	1	39	0	0	0
9/28/2004	1530	56	50	1	0	2	3	1	0	49	0	1	0

Report1

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Broadcast Signal Lab

**Review of AT&T Wireless Application for
a Wireless Service Facility at 135 Boston Post Road Wayland, Massachusetts**



Introduction

Broadcast Signal Lab, LLP was engaged by the Town of Wayland, Massachusetts Zoning Board of Appeals (ZBA) to review the applications for a personal wireless service facility at 135 and 137 Boston Post Road. The application for 135 Boston Post Road is on hold at the election of that applicant, Sprint, Spectrum. This report focuses on the 137 Boston Post Road applications by Eastern Towers with AT&T Wireless as a co-applicant. Sprint is also a co-applicant at this site, however their active pursuit of the site is on hiatus as they examine an alternative possibility of occupying an existing structure.

The applicants have submitted information to the record intended to substantiate their need for and the intended use of the proposed facility. The proposed facility is a monopole tower of 120 feet height above ground with a concealed-antenna design in which the antennas and appurtenant cables are enclosed within a continuous cylindrical surface. It is to be located in a residential district and is not within the Wayland Wireless Communications Services District.

It is fitting, then to discuss the following topics.

1. Is there a need for additional coverage for AT&T Wireless?
2. What is the capability of the Overlay District to support the fulfilling of that need?
3. What are the capabilities at the proposed site?
4. What alternatives exist?

Summary

My analysis is based on an assumption about the manner in which the ZBA will decide on the application. If the ZBA determines that it is able to render a favorable decision under the variance rules of Chapter 40A of Massachusetts general laws, then the information discussed below can be employed to consider the question of hardship for the applicant(s). If the ZBA determines that it is unable or unwilling to render a favorable decision on variances, then the question of the Telecommunications Act of 1996 comes into play. The applicants suggest in their submittals that if a prohibition of service would be created by disapproval of the application that the ZBA has a duty under the TCA to grant the applicants relief.

To determine whether a prohibition of service would occur, I understand that one must have a gap in service that is significant and that cannot reasonably be fulfilled by an alternative. Advice of counsel is recommended on interpreting the ZBA's obligations under the TCA.

Broadcast Signal Lab, LLP
503 Main Street
Medfield, MA 02052
508 359 8833

Broadcast Signal Lab

137 Boston Post Road, Eastern Towers, AT&T Wireless

Gap?

In summary, it is my opinion that there is a gap in AT&T service along Route 20 in the vicinity of the proposed facility. The extent of that gap is uncertain because there has been no drive test to corroborate the actual signal levels present in the area and the signal levels that would result from the proposed facility and the soon-to-be-constructed Weston facility to the east. Consequently, it is not clear that the 120-foot height is absolutely necessary at the proposed site. It appears that a height of, say, 70 feet would provide one carrier with a substantial amount of coverage in the target area. There is no certainty that the height of 120 feet would provide reliable continuous communication to the coverage from the Weston facility under construction; so both the 70-foot and 120-foot heights appear to require an additional facility near the Weston-Wayland line in the future, rendering the 120-foot height less than necessary.

Significance?

The significance of the gap relates to its relative size and to its impact on the use of the service. The gap could be as little as ½ mile and as much as a mile and a half in length along Route 20, depending on what signal level threshold actually applies to the measure of "significant" and the degree to which the signals from the Sudbury-Wayland line provide coverage, despite what the AT&T computer-estimated plots show. The applicants suggest their state traffic statistics substantiate the significance of service interruptions in the area.

Viable Alternatives?

If the ZBA decides there is a significant gap that would be served by the proposed facility, it apparently must then decide whether a prohibition of service would result if the facility were not permitted. A prohibition of service would occur if there were no alternatives or if it would be fruitless to try to develop them. (Seek legal counsel on interpretations of the TCA- these issues are raised here to only organize the technical discussion.)

The existing facility on the Sudbury-Wayland line, or a new facility nearby in the Wayland Wireless Communications District are the first options to consider. Our analysis of the coverage from the Nextel case suggests there is a radio line of sight to a segment of Route 20 in eastern Wayland and therefore a potentially usable signal there, under 2.5 miles distant. While the propagation of Nextel's frequencies and the PCS frequencies of AT&T and Sprint differ somewhat, my drive-test in the Nextel case (and submitted to the record by others) suggests that even allowing for several dB additional loss at the PCS frequencies a usable PCS signal should appear on a segment of Route 20 east of the proposed facility. This is not shown in the AT&T plots. Nevertheless, coverage from the Sudbury-Wayland line will not fulfill the entire segment of Route 20 in eastern Wayland. However, in conjunction with this coverage a lower, less intrusive facility or facilities might be all that is necessary to complete service in the area.

Broadcast Signal Lab**137 Boston Post Road, Eastern Towers, AT&T Wireless**

AT&T says some electrical transmission towers in the area could provide satisfactory coverage, but casts doubt on the developability of the sites for various reasons. Without further diligence on the possibilities, it might be premature to rule out these existing tall structures on the basis of a first-blush analysis of viability. Indeed, Sprint is sufficiently encouraged by the possibilities at the electrical transmission towers that it has put its application on hold to perform due diligence on them. Thus, from the present standpoint, there might be sufficient potential demonstrated in the electrical transmission towers to consider them viable options. Nationwide, planning agencies and local bylaws/ordinances strongly encourage the use of existing structures to support wireless communications, leaving new tower construction as a last resort. Wayland does too. For this reason, the possible use of the electrical transmission towers might deserve the opportunity to be explored.

The possibility of a Distributed Antenna System (DAS) came up in discussion. AT&T plans to install such a system on Nantucket, a town which, like Wayland, is notorious for guarding its environmental character. AT&T could propose a DAS along eastern Route 20. While there are potential roadblocks in the negotiation and approval of pole rights, it is a possibility that remains unexplored.

The Sprint proposal for 135 Boston Post Road is another viable alternative, in that it is leased and under application. It is unfortunate that these two mutually exclusive applications are not continuing to be heard at once. However, there may be sufficient evidence on the joint record to render an opinion about the viability of the Sprint facility from a zoning perspective. That is, if the proposed facility at 137 Boston Post Road is more in keeping with the spirit of the Zoning Bylaw than 135, then a disapproval of the 137 application on the basis of insufficient compliance with the spirit of the Bylaw suggests that a similar decision might occur for the Sprint application at 135. After discussing this, the ZBA might decide whether the proposed facility at 135 is more, less, or equally viable as the proposed facility at 137. If 135 is determined to remain viable under the circumstances, then it becomes one of the viable alternatives that precludes a prohibition of service in the event of a denial of 137.

Finally, the ZBA might be satisfied by the showings made by the applicants regarding the search for other parcels for a tower. On the other hand, the conditions under which offers were tendered and declined can be tenuous. The original proposal for a 120-foot tower may be a harder sell than, say, an 80-foot tower. Proposals tendered just to show an attempt to consider alternatives, if any, may have been half-hearted. Suitable parcels may have been inadvertently overlooked due to a lack of local knowledge or creativity. The ZBA should consider how much weight the applicants' documented efforts to find available parcels should be given in assessing the possibility of better parcels in the area being available.

Broadcast Signal Lab

137 Boston Post Road, Eastern Towers, AT&T Wireless

The viability of alternatives should be considered in light of the TCA and advice of counsel is recommended to help distinguish the fine line between a viable site and an unviable one, a potentially fruitful pursuit and a fruitless one.

Summary Conclusion

The ZBA should determine whether the proposed facility is the only way to resolve any area it considers to be a significant gap. Lower heights or alternative locations should be considered to determine if any are viable enough to pursue and if they are less objectionable in light of the community interest.

Detailed Discussion

AT&T has submitted signal strength predictions prepared by computer. The computer model is generically "tuned" for the region based on previous field measurements at other sites (drive tests). In situations where there exists what I refer to as a "close call," a drive test of the actual site or sites in question removes uncertainty about that close call situation. One such close call will be discussed further below. Mr. Goyal of AT&T testified October 21, 2003 (p.37), "some of the towns ask for the drive test, and we show them the prediction and the drive test." AT&T's response to my written questions contradicted this, indicating "a site-specific drive test was not necessary..." and that "It would be irrational for a qualified RF expert to conclude otherwise."

On the contrary, it is quite rational to seek a drive test in this matter. Evaluating the need for the facility, its height, and its location requires a careful assessment of the "close call" situations in network design. AT&T insists the proposed height is necessary, and states that the colored overlays on the map represent good coverage while the white spaces do not. Yet even at the proposed height there remains a region of "white space" on Route 20 that represents a gap. AT&T is willing to tolerate it, apparently for a few years or more, based on testimony. When asked how AT&T distinguishes between tolerable white space and unsatisfactory white space (May 28, 2004 response, p14), AT&T responds, "When the facilities in Wayland and Weston are up and operating along Route 20, AT&T Wireless will evaluate the actual coverage from these facilities and determine whether or not any remaining coverage deficiencies in the hand-off areas between the sites justifies the need for a new facility (including without limitation a microcell or repeater) in this area of Wayland or Weston." By this statement, AT&T acknowledges this region that straddles the Wayland-Weston border where the computer model may not provide sufficient certainty about the network design. A drive test of the Weston site and the proposed Wayland sites would indeed have illuminated this question, which would have been more constructive than simply deferring the answer to the question until a tall 120-foot tower were installed at the proposed site.

Broadcast Signal Lab**137 Boston Post Road, Eastern Towers, AT&T Wireless**

The question of this close call is key to the determination of the height of the proposed facility. The AT&T computer estimates show that as the antenna height is lowered, the coverage to the east, diminishes steadily. As observed by AT&T and other participants in the process, even at 120 feet, the computer predicts an incomplete connection with the Weston facility's coverage.

Another reason that a drive test would have been advisable in this situation is the fact that there are various signal levels that constitute wireless coverage. A drive test can show these different levels with the highest degree of accuracy. The computer-estimated coverage is based on AT&T's estimations using a -95 dBm signal strength threshold and propagation models, the basis of each which it declines to reveal. The question, then, is whether the material presented is an indication of a reasonable threshold of coverage. The difficulty lies in the wireless companies' use of a sliding scale depending on what they are trying to show. For instance, AT&T certified compliance with FCC license criteria of serving an area covering a certain percentage of the population by employing a -104 dBm signal strength. It defined this as "adequate coverage" to the FCC. An AT&T filing called a Required Notification is attached. It contains a description of the propagation modeling algorithm and a justification of the -104 dBm signal level threshold used to inform the FCC of its claim of adequate coverage.

Then during its rapid buildout of the past two years or so, called the Liberty Project, AT&T in this region has sought to get coverage along the roadways using the -95 dBm projected signal level as a threshold. AT&T acknowledges that in the future it may seek higher signal levels, just as it is in other parts of the State right now. Here lies the moving target that vexes responsible planning and zoning processes: a wireless company selects what it defines as coverage, framing the conversation to its liking by selecting the threshold signal level that best fits its argument.

If the ZBA is considering the issuance of a Variance on the basis of federal Telecommunications Act of 1996 (TCA), it would need to make a determination that a significant gap exists which the proposed facility would serve, and for which no alternatives would be fruitful (seek advice of counsel on this observation, which is only based on my experience with dozens of other wireless facility processes- a document prepared by Kopelman and Paige for the Town of Kingston is also enclosed as an example of interpretations of the TCA in this regard).

To make the significant gap determination, first the gap must be identified. AT&T shows white space on its plots as the purported gap at -95 dBm. No information about -104 dBm is shown. As one resident commenter in the hearing suggested, the AT&T service in the vicinity of the proposed facility is "lousy." (October 21, 2003, p69) This is only one anecdotal comment that does not stand as proof of either lousy or reasonable service, but it does suggest that there is some usable signal arriving in the area. A drive test would have been a more precise indicator of the areas within which the various signal levels would have

Broadcast Signal Lab**137 Boston Post Road, Eastern Towers, AT&T Wireless**

been observed along Route 20. Without the drive test, we must extrapolate where the signal levels at lower and higher thresholds would appear.

To the west of the site, the hill dropping into the Town center appears to act as a physical obstruction to the coverage from the proposed facility. As the antenna height is changed, the coverage in this direction, including Route 20, does not appreciably change. Since this is a relatively short distance, perhaps a half mile, the signal level may be substantially stronger than -95 dBm at the terrain edge and it may diminish precipitously below -95 and -104 dBm as the user drops over the hill. So there is not much to be gained in this direction from analysis of the different signal level thresholds.

In the opposite direction, easterly along Route 20, the AT&T computer-estimated -95 dBm coverage diminishes approximately ¼ mile as the antenna height is reduced from 120 to 75 feet. This gradual transition in the position of the -95 dBm boundary with changing antenna height suggests that there may be a more gradual reduction in signal level in which the terrain does not play the major role. The terrain is fairly level in the vicinity of the -95 dBm edges easterly on Route 20, suggesting that the signal level may taper off beyond -95 to -104 and beyond as one travels east. This is the reason that a wireless engineer may be less concerned about making a rock-solid connection in the Weston-Wayland area—an excursion of signal level to the lower -104 dBm threshold can be satisfactory.

In the reverse, what are the characteristics of the signal already coming in from other sites to the target area? Perhaps most relevant is the signal from the Sudbury Landfill site. It is only about ¼-½ mile farther west of the location we drive tested in the Nextel case. That location was at the Town "Old Landfill" site. Discussion has occurred in this hearing about our drive test in the Nextel case and some clarifications are in order. First, the Nextel frequencies are less affected by vegetation than the PCS frequencies AT&T and Sprint use, so there might be more PCS signal loss at a distance on Route 20 than our drive test showed for Nextel. Nevertheless, we did see that there was a propagation path from a facility by the Sudbury-Wayland line to the easterly portion of Route 20 in Wayland. It is conceivable that a substantial amount of -104 dBm AT&T service exists on Route 20 in the eastern Wayland area. There may be segments of -95 dBm service as well that were not predicted by the AT&T model. Only a drive test would capture the character of the signal performance from west to east. Indeed, as observed by Mr Wysocki, the pocket of lower signal level I identified in the terrain "trough" along Route 20 near the Temple would still be such a pocket for the emissions from any facilities near the Sudbury-Wayland line. That does not mean that a 120-foot tower has to be installed in the pocket to resolve its signal level depression. If the pocket causes enough call interruption to be considered significant, then lower less intensive facilities might be all that are required to fill the pocket, depending on how well the rest of this portion of Route 20 is being served. Recall that it is Route 20 that is AT&T's stated primary objective, with the benefits of additional coverage

Broadcast Signal Lab

137 Boston Post Road, Eastern Towers, AT&T Wireless

in the neighborhoods adjacent to Route 20 to the degree that they result from obtaining more Route 20 coverage.

Based on the foregoing, the signal levels coming from the Sudbury facility to the eastern portion of Route 20 are likely to be useable in some locations along eastern Route 20. However, there is sufficient distance and obstruction to these signals that it is reasonable to conclude that there is a gap in reasonably uninterrupted communication for AT&T subscribers along at least a short portion of eastern Wayland's Route 20, particularly in the terrain pocket, and also near the Weston-Wayland line (both sides).

Summarizing, at -95 dBm there is a gap in AT&T service along Route 20 in eastern Wayland, although it may not be as extensive as that shown by AT&T on its plots. At -104 dBm the gap in eastern Wayland may be substantially less, but it is likely that there remains at least a small gap in the terrain pocket described above. There are no field measurements to better quantify the gap and the differences in gap depending on the threshold chosen.

At an in-building service level of, say, -85 dBm, a measure of service AT&T is likely to seek for local in-building service in the future, then the gap is substantial in size (leaving the discussion of the significance of any gap for a separate discussion below). AT&T is not making this claim today; however, it would be imprudent to overlook the possibility that AT&T will be back soon for another facility, particularly when the Town could be saddled with a tall tower whose height could be rendered unnecessary with a two-facility design in the future.

The significance of a gap is subjective. AT&T has submitted traffic statistics that the Board may consider in evaluating the significance of a gap. Recall that in Lincoln, some 40,000 cars per day on Route 2 were considered of enough significance for the court to apply the TCA.

The AT&T computer estimates of coverage from the height of 75 feet at the proposed facility site(s), compared to the 110-120-foot heights, suggest that there would be only a minor reduction in service, based on the -95 dBm threshold, to the east toward the estimated coverage of the Weston facility. Since there is no coverage overlap shown to the east even at the 120-foot height and since there is no drive test data to verify actual coverage at 120 or 75 feet, and since AT&T is willing to wait until facilities are constructed to take measurements to see if a third facility is necessary near the Weston-Wayland line (on either side will do), then a reduction in the height of the proposed tower is not out of the question. Even at a 70-foot height (ten feet above the reported tree canopy) AT&T could obtain provide a higher grade of service to a substantial portion of Route 20 in eastern Wayland than it presently has.

Broadcast Signal Lab

137 Boston Post Road, Eastern Towers, AT&T Wireless

The highest-potential alternatives to the proposed site(s) are the electrical transmission towers. Sprint is actively studying them for their viability. AT&T acknowledges that some of them would be suitable substitutes for the proposed facility, from the perspective of coverage, but casts its doubt on the viability of the sites from the perspectives of access, development and availability. More work could be done to explore the potential roadblocks that AT&T visualizes. In fact, Sprint is doing just that.

Other sites that AT&T indicated it has tried and failed to obtain owner interest in leasing include other parcels, particularly some with non-residential uses mostly east of the proposed location(s). If these landowners were confronted with 120-foot tower proposals and declined, they might be more receptive to shorter, less intrusive installations, either on existing structures, extensions of existing structures, or separate poles or towers.

If the ZBA cannot or will not grant a variance under Massachusetts law and local bylaw, then the question arises, is the denial of the proposed facility at 137 Boston Post Road an effective prohibition of service?

To address this question, the ZBA may wish to consider the following:

Is there a gap in AT&T service?

Is the gap of such size or impact that it is significant?

If the ZBA denies the facility as proposed, is there a viable alternative?

Answering the first question, is there a gap in service, I have indicated that I feel there is to some degree a gap in service along the subject section of Route 20 in eastern Wayland and western Weston. By the least measure the gaps may be small and intermittent, but we lack drive test data to demonstrate its breadth. By the proposed AT&T measure today (-95 dBm using only computer estimations) the gap is as shown on the plots. By a likely future AT&T measure the gap is even wider than it has shown.

As to the significance of the gap, a judgment of the traffic data should be made. By any measure, there is not likely to be reasonably uninterrupted communication along at least a small stretch of Route 20.

Regarding a non-approval of the facility, would the door be closed on filling gaps deemed to be significant? In the least measure, it is possible that a relatively small low profile facility will fill the terrain pocket and more of Route 20 to a degree sufficient to provide service. There is not enough data about -104 dBm coverage to determine this. If it is necessary to have greater coverage along Route 20 than a low profile facility near the terrain pocket can provide, then other options include a distributed antenna system along

Broadcast Signal Lab**137 Boston Post Road, Eastern Towers, AT&T Wireless**

Route 20 (perhaps a utility-pole-mounted antenna every 1/4 mile or so), a much shorter tower at the proposed site(s), or the use of the electrical transmission towers. If a shorter tower than proposed is employed, it may be viable at other sites as well, if it is sufficiently less objectionable to landowners who declined the offer of a 120-foot tower.

If Sprint finds an electrical transmission tower location that is viable, it is likely AT&T can do the same. If Sprint finds it must turn back to its application at 135 Boston Post Road, which AT&T is signed on as co-applicant, a ZBA non-approval of 137 Boston Post Road now does not preclude a later finding of no alternatives and approval of 135 Boston Post Road. One difficulty with this approach is that if 137 Boston Post Road is a less objectionable alternative to 135, 137 as a disapproved site would not be a viable option anymore.

Other Matters

In addition to analysis of the coverage and siting issues of the proposed facilities, the Town seeks comment on other topics.

The noise report was prepared by a company with whose work I am familiar. They employ industry standard methods to conduct their measurements and analysis. The analysis reasonably interprets the Wayland Noise Code and wireless facility noise criterion as well as the Massachusetts DEP air pollution standard for noise. No information was given about the exact location of the monitoring unit on the site, but assuming its location was close to or on the leased tower site it appears there are no localized noise sources to confound the analysis (except the temporary noise from lawn equipment on a Saturday, which was reasonably discounted in the estimation of average and background levels).

The human ear is a powerful discriminator, even in the presence of background noise. The quietest background levels measured, 48 dBA, could have a particular frequency distribution that does not mask a 42 dBA noise source from the facility with a different frequency distribution. The DEP criteria address "pure tone" conditions where the energy in any third-octave band exceeds that adjacent bands by 3 dB or more. The noise report does not address this issue. In a very general description, the noise of a wireless site consists of electric motors and fans running cooling equipment, not unlike the noises of window or central air conditioners. They are characterized by a general broad band rushing sound of air turbulence plus hums from the electric motors and higher pitched sounds from the rotational rates of the moving parts. In aging systems there may be vibration noises, such as rattling or buzzing, and squeaks or whistles that exceed the noise measured at the factory.

The computations for position of the noise sources and attenuation over distance to the property lines are not presented in the report, so they cannot be peer-reviewed. However, the conclusions of the report are

Broadcast Signal Lab

137 Boston Post Road, Eastern Towers, AT&T Wireless

consistent with noise characteristics I have observed at other similar wireless facilities in similar configurations.

In general, then, the noise analysis reasonably concludes with an expectation of compliance with the applicable regulations. However, if the facility is approved, additional conditions could be imposed to ensure that coherent sounds or "pure tone" conditions that arise during the life of the facility be eliminated by suitable maintenance or repair in a timely manner upon notification by the town.

The radio frequency emissions of the facility as proposed are compliant with FCC regulations regarding human exposure to radio frequency energy. 47 CFR 1.1307 Table 1 indicates that the proposed facilities are below the threshold of *routine evaluation*, which is indicative of an inherently compliant configuration. There are no apparent exceptional conditions in this case (such as a ten-story building next to the proposed tower) that would negate the use of Table 1 to make the determination.

David Maxson

June 15, 2004

Broadcast Signal Lab

137 Boston Post Road, Eastern Towers, AT&T Wireless

AT&T Required Notification to the FCC

AT&T Wireless PCS, LLC
FCC Form 601 Required Notification
Section 24.203 Showing
KNLF216
Boston MTA
MTA008

Demonstration of Construction Requirements

Within 5 years of being licensed, Section 24.203 of the Commission's rules requires 30 MHz broadband PCS licensees to serve one-third of the 1990 population in the license area with a signal level sufficient to provide adequate service. On June 23, 1995, AT&T Wireless PCS, LLC¹ ("AWP") was licensed to operate a broadband PCS system on spectrum block A in the Boston MTA (MTA0008). Call Sign KNLF216 was assigned.

The 1990 population of the Boston MTA is 9,452,712. AWP's Boston system provides a signal level sufficient to provide adequate service to a 1990 population of 5,177,666. Therefore, AWP provides a signal level sufficient to provide adequate service to 55% of the population of the MTA.

Attached is (1) a map that graphically depicts the area in the MTA which receives a signal level of -104 dBm or better and (2) an exhibit which justifies the use of -104 dBm as the signal level to define adequate service and which explains how AWP arrived at the population receiving adequate service.²

The foregoing materials demonstrate that AWP has met its Section 24.203 buildout requirement. By the signature of the officer executing the instant FCC Form 601, AWP hereby certifies that the information contained in this notification is accurate.

¹ The initial authorization was issued in the name of AT&T Wireless PCS, Inc. As a result of a reorganization of its PCS operations, on September 7, 1999, AT&T Wireless PCS, Inc. was converted to a limited liability company whose name is AT&T Wireless PCS, LLC. Notification to the Commission of the pro forma assignment of license was filed with the FCC on October 4, 1999. See File No. 0000030525.

² Specific information listing each of the Census Block Groups used to determine the population receiving adequate service will be supplied on request.

Engineering Justification

Section 24.203(a) of the Commission's Rules states that licensees of 30 MHz blocks must provide adequate service to at least one-third of the population in their licensed area within five years of being licensed. AT&T Wireless PCS, LLC ("AWP") defines adequate coverage as -104 dBm.

The -104 dBm level is the lowest value that the mobile phones used by AT&T Wireless will consistently carry a discernable call. This value is derived in the following list:

Antenna Noise	-130 dBm
Noise figure of mobile	9 dB
Carrier/noise (3% BER)	+ 17 dB
	-104 dBm

Calculations of the distance to this contour are obtained from complex propagation models used in designing and analyzing the network. The models are based on the Cos 231-Hata model defined as follows:

$$L = 46.3 + 33.9 \log(f) - 13.82 \log(H_b) - a(H_m) + [44.9 - 6.55 \log(H_b)] \log(d) + C$$

where

$$a(H_m) = (1.1 \log(f) - 0.7) H_m - (1.56 \log(f) - 0.8)$$

Calculation of population covered

Three data sets were required to determine the approximate population covered in the MTA.

An RF propagation prediction generated at the defined signal strength for adequate service, i.e., -104 dBm

A map of Census Block Groups ("Block Groups") provided by Geographical Data Technology, Inc.

1990 U.S. Census population counts for each Block Group.

Each Block Group was associated with the MTA within which it was located. The Block Groups were overlaid with the RF propagation prediction showing coverage of -104 dBm or greater¹ throughout the MTA. A calculation was conducted showing the percentage of each Block Group that received coverage of -104 dBm or greater. The percentage of the Block Group covered by a signal level of -104 dBm or greater was multiplied by the 1990 population for the Block Group in question. The population of all Block Groups in the MTA receiving coverage of -104 dBm or

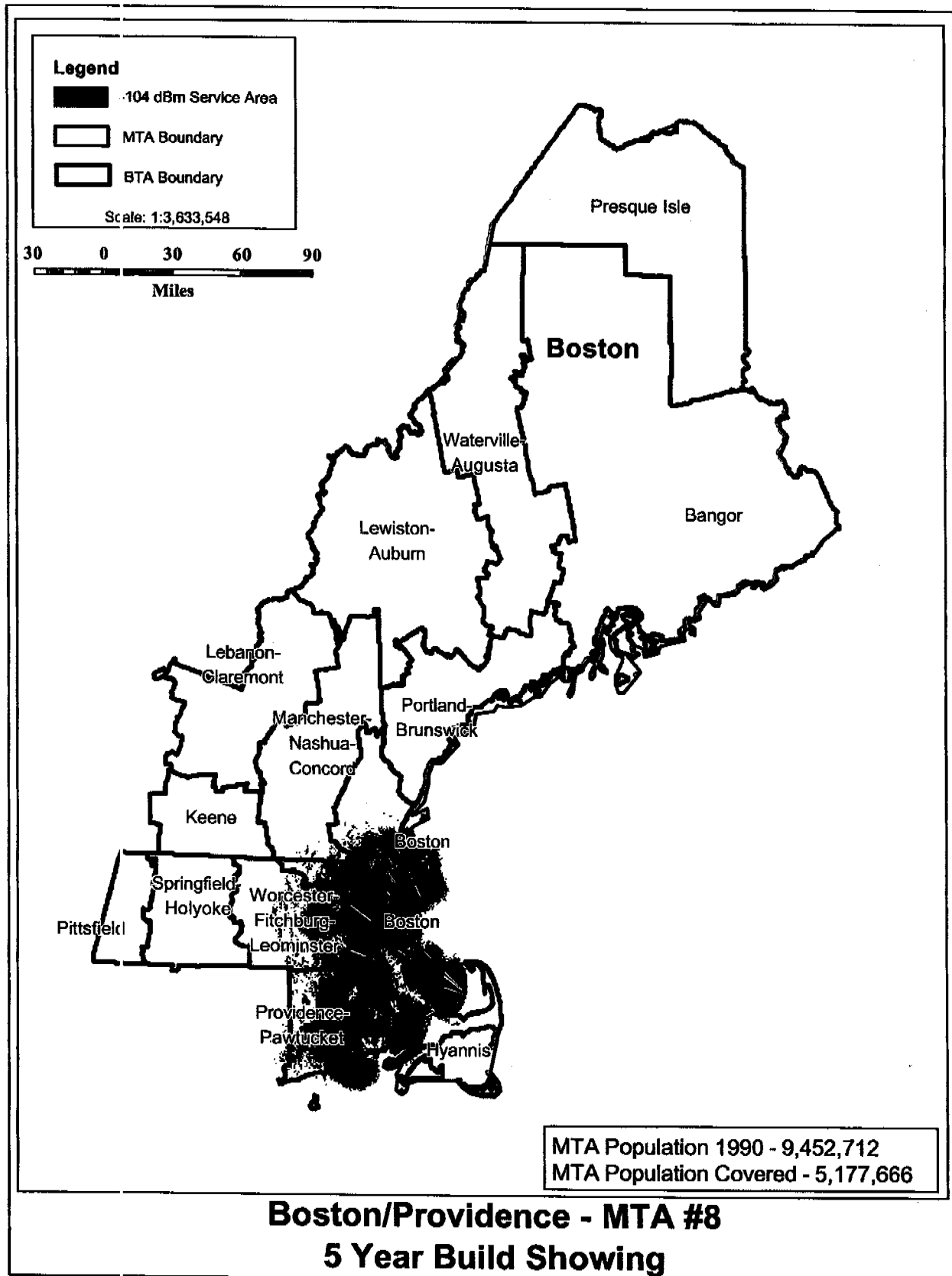
¹ Block Groups that are covered by spurious predicted RF were removed and, hence, not used.

greater was added together to arrive at the total population of the MTA receiving adequate service.

Broadcast Signal Lab

137 Boston Post Road, Eastern Towers, AT&T Wireless

**Kopelman and Paige Opinion to the Town of Kingston
On TCA-Based Decisions**



LEONARD KOPELMAN
DONALD G. PAIGE
ELIZABETH A. LANE
JOYCE FRANK
JOHN W. GIORGIO
BARBARA J. SAINT ANDRE
JOEL S. GARD
EVERETT J. HARDER
JOSEPH L. TIHAN, JR.
ANNE-MARIE M. HYLAND
THERESA M. DOWDY
DEBORAH A. ELIASON
RICHARD BOWEN
DAVID J. DOHESKI
JUDITH C. CUTLER
ILANA M. QUIRK
KATHLEEN E. CONNOLLY
DAVID C. JENKINS
MARK R. REICH

EDWARD M. KELLY
DIRECTOR WESTERN OFFICE

WILLIAM HEING III
JEANNE S. SICKNIGHT
KATHLEEN H. O'DONNELL

KOPELMAN AND PAIGE, P. C.

ATTORNEYS AT LAW

31 ST. JAMES AVENUE

BOSTON, MASSACHUSETTS 02116-4102

(617) 556-0007
FAX (617) 654-1735

PITTSFIELD OFFICE
(413) 443-6100

NORTHAMPTON OFFICE
(413) 563-8632

WORCESTER OFFICE
(508) 752-0203

SANDRA M. CHARTON
PATRICIA A. CANTOR
THOMAS P. LANE, JR.
BRIAN W. RILEY
MARY L. GIORGIO
DARREN R. KLEIN
THOMAS W. MCENANEY
JONATHAN M. SILVERSTEIN
KATHARINE GOREE DOYLE
GEORGE X. PUCCI
LAUREN F. GOLDBERG
JASON R. TALERMAN
MICHELE E. RANDAZZO
GREGG J. CORSO
RICHARD T. KOLLAND
LISA C. ADAMS
ELIZABETH R. CORSO
DANIEL C. HILL
MARCELINO LA BELLA
VICKI S. MARSH
JOHN J. GOLDBERGEN
SHIRIN EVERETT
TANYA O. TREVISAN
BRIAN E. GLENNON, II
JONATHAN D. KICHMAN
MICHAEL C. GLEBA
TODD A. FRAMPTON
CAROLYN M. MURRAY
JACKIE A. COWIN

January 3, 2003

Zoning Board of Appeals
Kingston Town House
23 Green Street
Kingston, MA 02364

Re: Proposed Wireless Communications Facility, off Ring Road

Dear Members of the Zoning Board of Appeals:

You have requested an opinion regarding an appeal from the denial of a building permit application, an application for a variance, and an application for a permit for a specific use, all pertaining to a proposed 120-foot high wireless communications facility to be located on property off of Ring Road shown on Map #53, Lot#4 ("the Property"). You have asked a number of questions, including whether the Board has the authority to issue a use variance, whether the Town's Zoning Bylaws may be interpreted to allow the proposed use at the Property, and how the federal Telecommunications Act impacts the Board's decision.

In my opinion, under the Town's Zoning Bylaws, §6.11.2.2, the proposed facility would not be allowed at the Property because the Property is not located in the Industrial or Commercial/Industrial Park districts. It is my further opinion that under the state Zoning Act, G.L. c. 40A, § 10 and the Bylaws, §7.5.2.1.c.1, the Board is not empowered to issue a use variance.

However, it also is my opinion that under the legal framework created by the federal Telecommunications Act of 1996, 47 U.S.C. §332(c)(7) ("TCA"), the Board has a separate source of authority to grant relief that is the equivalent of a use variance. In other words, it is my opinion that while state law and the Bylaws would not authorize the Board to grant a use variance, under federal law the Board could do so. In my further opinion, if the applicant proves that the denial of the relief would have the effect of prohibiting personal wireless services under the TCA and the Board denies the relief, there is a significant risk that the decision would be subject to challenge in federal court for violation of the TCA.

KOPELMAN AND PAIGE, P.C.

Zoning Board of Appeals
January 3, 2003
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You have informed me of the following facts. AT&T Wireless PCS, LLC, along with Omnipoint Holdings, Inc., and National Tower, LLC (collectively, "the Applicants") have applied to install, maintain and operate a Wireless Communication Tower and related facilities on the Property, which is owned by Mr. Domingo Fernandes and which is located in the R-40, residential zoning district. The tower is described as a 120-foot high monopole with a "cylindrical appearance that can be made to appear as a flagpole." A "supporting equipment cabinet" will be constructed within a fenced area near the base of the pole.

On August 29, 2002, the Town's Building Inspector/Zoning Enforcement Officer denied a building permit application because the "location is not in a non-residential area as required in Bylaw Section 6.11.2. 7.1 Flagpole does not blend into natural surroundings as required by section 6.11.2.7.1." Thereafter, the Applicants appealed to the Board for review of the Building Inspector's decision, to allow a variance from the Bylaw §6.11.2.7.1 (and §7.5.2.1, if necessary), and/or to issue a permit for a specific use under §6.11.2.1 and §7.7.2. At the hearing, the Board upheld the Building Inspector's decision and continued the hearing regarding the interpretation of the Bylaws on the application for a variance and other permits.

In summary, the Applicants argue that the Bylaws, §6.11.2.3, gives the Board discretion to permit the use in other than the Industrial or Commercial/Industrial Park Zoning Districts because the Bylaw states that the use may be located in those districts "wherever possible," thereby implying that, in some circumstances, the use may be allowed outside of those districts. Alternatively, they argue that the Board should issue a variance.

The Town's Zoning Bylaws

Section 6.11 of the Zoning Bylaws regulates Communications Towers and Wireless Communications Facilities. Section 6.11.2.1 provides: "No wireless communications facility shall be erected or installed except in compliance with this Bylaw. In all cases, a Special Permit is required from the Board of Appeals." Section 6.11.2.2 states: "Wireless communications facilities may be allowed by Special permit on all land located in the Industrial Districts (I) and in the Commercial/Industrial Park Districts. Wireless communications antennas . . . may be mounted or attached to existing structures, including but not limited to water towers and church steeples, in any district. All wireless communications facilities must be designed and screened as required by Section 6.11.4.4." Before a building permit may be issued, the Bylaw, §7.1.1 requires that a "Zoning Permit," "indicating compliance with this Bylaw" be obtained from the Zoning Enforcement Officer.

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In my opinion, under §6.11.2.2 a new free-standing wireless communications facility, a monopole under §6.11.2.4, such as the Applicants propose, is restricted to land located in the Industrial (I) and the Commercial/ Industrial Park Districts. It is therefore my opinion that the Bylaw does not permit such a facility to be located in the R-40 residential district. While §6.11.2.3 states: "Whenever possible, wireless communications facilities shall be located in the two (!) non-residential zoning districts described in Section 6.11.2.2," it is my opinion that that provision states a preference applicable to all wireless communications facilities, including antennas attached to existing structures, but does not confer discretion on the Board to allow a free-standing new monopole outside of the Industrial (I) and the Commercial/ Industrial Park Districts.

In my further opinion, §6.11.2.7.1, which allows a special permit where the Board makes a finding that "a proposed antennae or other wireless communication equipment would blend with the natural surroundings and show no evidence of being a communication facility," does not apply in these circumstances because the exception applies only in a "non-residential area." The area in question, the Property, is located in a residential zoning district. The Applicants argue that the use of the word "area" in this section is broader than the term "zoning district" used elsewhere, and that that means the Board may allow the special permit in the non-residential "area" despite the fact that the Property is not located in a residential zoning "district."

It is my opinion that the use of the word "area" in §6.11.2.7.1 does not change the requirement that a new free-standing monopole may only be located in the Industrial (I) and the Commercial/Industrial Park Districts. I therefore do not agree with the Applicants' interpretation of the Bylaw. Regarding the Applicant's claim that the proposed facility complies with §6.11.2.7.1 because it blends into the natural surroundings and shows no evidence of being a communication facility, it is my opinion that whether the facility so complies is a matter within the Board's discretion.

Under the second sentence of §6.11.2.2, if the proposed facility is not a new monopole, but is to be mounted or attached to an existing structure, such a facility could be located in a residential district, assuming the other provisions of the Bylaw are satisfied.

The Bylaw, in §7.5.2.1, provides: "No variance may authorize a use or activity not otherwise permitted in the District in which the land or structure is located." See also, G.L. c. 40A, §10, which provides that unless a use variance is specifically allowed in a zoning bylaw, it is prohibited. It is therefore my further opinion that, except as explained below, the Board may not issue a use variance. Because the proposed use would not comply with the Town's zoning requirements, the Zoning Enforcement Officer also could not issue a Zoning Permit for the use.

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If the only laws applicable to the Applicants' proposed use were state law and the Town's Zoning Bylaws, the Board would be acting well within its authority if it were to deny the requested relief. However, since federal law is involved, the legal context changes considerably.

The Telecommunications Act

The TCA, in §332(c)(7)(B)(i), provides: "The regulation of the placement, construction, and modification of personal wireless service facilities by any State or local government or instrumentality thereof - ... (ii) shall not prohibit or have the effect of prohibiting the provision of personal wireless services." Section 332(c)(7)(B)(ii) defines "personal wireless service facilities" as "facilities for the provision of personal wireless services."

In a growing number of cases, the federal district courts have found that permit and variance denials violate the TCA, even if such denials would be valid under state law. For example, in Omnipoint Communications v. Town of Lincoln, 107 F. Supp. 2d 108 (D. Mass. 2000) ("Omnipoint v. Lincoln"), the court found that denial of a variance for a location outside of the town's wireless overlay district violated the federal law and ordered the variance to issue despite a bylaw provision prohibiting use variances. Recently, in Nextel Communications of the Mid-Atlantic, Inc. v. Town of Wayland, United States District Court, No. 02-CV-10260-REK, November 22, 2002, the federal court reached the same result. In that case, the federal court stated: "Although the Board's statement [regarding its lack of authority to issue a use variance] may be a correct statement in Massachusetts regarding variances, it is not controlling in the special case of wireless communications facilities ... Under the Telecommunications Act, the Board cannot deny the variance if in so doing it would have the effect of prohibiting wireless services."

It is therefore my opinion that under the federal mandate of the TCA, the federal courts have ruled that the principles of the TCA override the state law on variances and that the Board has the authority under the TCA issue the permits, including a variance.

In order to grant such relief, however, it is my opinion that the Board must find that without the proposed facility the Applicants will be prohibited from providing personal wireless services. As explained below, such a finding involves several other findings, namely: (1) that there is a significant gap in coverage without the facility; and (2) that there is no other feasible alternative site for the facility. Omnipoint v. Lincoln; Telecorp Realty LLC v. Edgartown, 81 F. Supp. 2d 257 (D. Mass. 2000); and Nextel Communications of the Mid-Atlantic, Inc. v. Manchester-by-the-Sea, 115 F. Supp. 2d 65 (D. Mass. 2000).

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As interpreted by the federal courts, a prohibition or effective prohibition is proven if the plaintiff establishes that there is a significant gap in coverage in a geographical area and that the gap only can be filled by siting the facility at the particular location chosen by the applicant. The term "significant gap in coverage" does not have a precise definition, but is determined by the courts on a case-by-case basis. Second Generation Properties v. Town of Pelham (New Hampshire), United States Court of Appeals for the First Circuit, No. 02-1688, December 17, 2002. Among the factors that the courts have considered in deciding whether a significant gap in coverage exists are: the length of the gap, whether it is in a populated area (for example, not a "small residential cul-de-sac"), and whether it is along a "heavily traveled commuter thoroughfare." Omnipoint v. Lincoln. In the recent Second Generation Properties decision, the First Circuit held that it is permissible for a board in evaluating a claim that a permit denial would prohibit personal wireless services under the TCA to consider: "(1) roaming service, (2) the coverage provided from towers in other towns, and (3) service by carriers not licensed in the jurisdiction at issue."

Regarding whether there are other feasible alternative sites for the proposed facility, the courts have generally required the applicant to prove that other specific sites have been seriously investigated and the reasons the site were rejected as being unavailable or not providing the needed coverage. The courts do not require a municipality to show that additional sites exist or are available. Second Generation Properties.

The courts have upheld permit denials where the applicant has not established a coverage gap or where the applicant has not thoroughly investigated other possible locations. See, Town of Amherst, NH v. Omnipoint Communications Enterprises, Inc., 173 F.3d 9 (1st Cir. 1999); Second Generation Properties.

Recommendations

In evaluating the Applicants' requests for zoning relief in the context of the TCA, I recommend the following.

The Board should make its usual findings under the Bylaws independently of the TCA issues. If the application of the Bylaws would result in denial of the requested relief, then the Board should take the next step of analyzing the application under the TCA. In so doing, the Board should consider whether the relief might be granted under the TCA, even if the relief could be denied under the Bylaws and state law. In addressing the TCA issues, the Board should apply the factors identified above in the case law to decide whether the Applicants have proven that there is a significant gap in coverage and whether there is an alternative feasible location for the facility. In making these determinations, it is not necessary for the Board to make formal

KOPELMAN AND PAIGE, P.C.

Zoning Board of Appeals

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findings of fact, but it is essential for the Board to explain its reasons based upon the evidence it hears at the public hearing.

Finally, I note that the TCA issues, particularly those involving technical data pertaining to whether there is a significant gap in coverage, are often very complex and may require further technical analysis. If that is the case here, the Board may want to request the Applicants to pay for an independent consultant to assess that evidence. While the Bylaws do not expressly provide for such a consultant, it is my opinion that the Board has the authority to so request. If the Applicants agree, Board should also request that they agree to further extend the time in which the Board may take final action on the variance application.

If you have any further questions regarding this matter, please do not hesitate to contact me.

Very truly yours,



Patricia A. Cantor

PAC/df

cc: Board of Selectmen

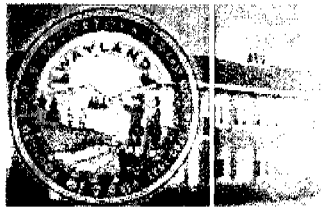
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SECTION III - TRAFFIC VOLUMES BY CITY/TOWN

of 43

AVERAGE DAILY TRAFFIC

STA.	CITY/TOWN	ROUTE/STREET	LOCATION	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
S002	WAREHAM	RTE 28	BTWN. MAPLE SPRINGS RD. & RTE 6							24,100			
S003	WAREHAM	RTE 28	EAST OF RTE 1-195	15,000				16,500					
S001	WAREHAM	RTE 28	WEST OF DEPOT ST.							28,190			
S001	WAREHAM	RTE 28	WEST OF TREMONT ST.										7,900
7173	WAREHAM	RTE 28 & 6	EAST OF DEPOT ST.					20,000					
S009	WAREHAM	RTE 28 & 6	WEST OF DEPOT ST.	7,200									
S010	WAREHAM	RTE 28 & 6	WEST OF GLENN CHARLIE RD.	5,900									
S001	WAREHAM	RTE 58	AT CARYER T.L.		8,400								
S002	WAREHAM	RTE 1-195	WEST OF RTE 25					16,800					
S016	WAREHAM	RTE 1-495	SOUTH OF RTE 58		38,000			29,600			24,200		
S001	WAREHAM	SOUTH BOULEVARD (ONE-WAY)	NORTH OF PROSPECT AVE.					1,100					
S012	WAREHAM	THONET RD.	OVER RTE 25										1,200
S003	WAREHAM	THONET RD.	OVER RTE 25		1,200								
S001	WARREN	APPLE RD.	AT BRIMFIELD T.L.										
S004	WARREN	COY HILL RD.	NORTH OF RTE 67	1,000						640			
S003	WARREN	RTE 19	AT BRIMFIELD T.L.							1,000			
S002	WARREN	RTE 67	AT PALMER T.L.							4,200			
S008	WARREN	SOUTHBIDGE RD.	SOUTH OF WASHINGTON ST.		2,200			2,400				2,200	
S001	WARREN	WARE RD.	NORTH OF RTE 67							2,200			
S016	WARWICK	HOCKANUM RD.	WEST OF RTE 78		270								
S001	WASHINGTON	RTE 78	AT NEW HAMPSHIRE S.L.										1,100
S001	WATERTOWN	PITTSFIELD RD.	BTWN. BEACH RD. AND DALTON T.L.					1,000					
S001	WATERTOWN	ARLINGTON ST.	NORTH OF ARSENAL ST.					10,900					
S001	WATERTOWN	ARSENAL ST.	OVER CHARLES RIVER	37,400							15,300		
S003	WATERTOWN	COOLIDGE AVE.	EAST OF GROVE ST.	3,700									
S002	WATERTOWN	GROUNGH BLVD.	EAST OF ARSENAL ST.	12,300									
4133	WATERTOWN	SCHOOL ST.	NORTH OF MOUNT AUBURN ST.					9,400					
S005	WAYLAND	PELHAM ISLAND RD.	WEST OF RTE 27								8,000		
S002	WAYLAND	RTE 20	EAST OF RTE 27								6,400		
S004	WAYLAND	RTE 20	WEST OF RTE 27								23,100		
S006	WAYLAND	RTE 27	NORTH OF PELHAM ISLAND RD.								18,600		
S007	WAYLAND	RTE 27	NORTH OF RTE 126					22,400			22,400		
S001	WAYLAND	RTE 27	NORTH OF RTE 20								11,800		
S003	WAYLAND	RTE 27	SOUTH OF RTE 20								25,000		
S008	WAYLAND	RTE 126	NORTH OF RTE 27								16,400		
S002	WEBSTER	BIRCH ISLAND RD.	EAST OF RTE 193							1,200	8,000		
S003	WEBSTER	HILL ST.	SOUTH OF CARTER ST.										
S007	WEBSTER	LAKE PARKWAY	WEST OF RTE 193							6,400		3,300	
S004	WEBSTER	LAKE ST.	WEST OF BEACON ST.							7,300			
S001	WEBSTER	PERRYVILLE RD.	NORTH OF BROOKSIDE AVE.									830	
S002	WEBSTER	PLEASANT ST.	NORTH OF RTE 12	3,600									
S002	WEBSTER	RTE 12	NORTH OF PLEASANT ST.									19,500	
S009	WEBSTER	RTE 12	WEST OF LINCOLN ST.					21,400			17,600		
S001	WEBSTER	RTE 16	EAST OF RAWSON RD.		12,000			12,300			6,000		
S001	WEBSTER	RTE 16	EAST OF RTE 1-395		12,000			12,300			12,500		
S001	WEBSTER	RTE 193	AT CONNECTICUT S.L.	4,100									
S001	WEBSTER	RTE 193	NORTH OF BIRCH ISLAND RD./LAKE ST.							10,200			
S005	WEBSTER	RTE 193	NORTH OF LAKE PARKWAY							11,800			
S003	WEBSTER	RTE 193	SOUTH OF BIRCH ISLAND RD./LAKE ST.							12,100			
S006	WEBSTER	RTE 193	SOUTH OF LAKE PARKWAY							12,900			
S008	WEBSTER	RTE 1-395	AT CONNECTICUT S.L.	15,000	14,000	19,000	18,000	16,800	17,700	18,800	18,800	18,800	22,600



Town of Wayland Massachusetts

08/30/04

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History:

In 1835, East Sudbury became Wayland, a farming community, presumably in honor of Dr. Francis Wayland, who was President of Brown University and a friend of East Sudbury's Judge Edward Mellen. Both Wayland and Mellen became benefactors of the town's library, the first free public library in the State.

New England farms began to decrease as canals and railroads brought cheaper produce from the mid-west. Local farmers suffered an additional setback when the Middlesex Canal Dam raised the river level and hay crops needed for livestock were ruined. Farmers in Sudbury River towns, including Wayland, brought suit against the Canal and brought the matter before State legislative hearings in the 1850's, all to no avail.

The Industrial Revolution caused transportation patterns to change. By 1881, a new train station connecting Wayland Center with Boston and Northampton. Wayland became a bustling commuter town. Even before commuting was made easy, Wayland's attractiveness proved appealing as a summer residence for well-to-do Bostonians. They acquired country estates, built new homes or remodeled older farmhouses, thereby providing an economic stimulus to the northern end.

In contrast to the scattered farms and summer residences of the northern end, a compact mill center developed in Cochituate Village. In 1830, the Bent family started the shoe industry at the corner of Routes 27 and 30, with some of the work parceled out to neighbors. By the late 1850's, the Bent factory employed several hundred people, many of them immigrants. This influx necessitated new housing for the area. The center of the shoe industry shifted from Bentville to the Lokerville area (Route 30, East Plain Street and School Street intersection).

In the 1880's at the peak of shoe manufacturing activity, there were at least ten shops employing over 600 workers; the Bent Factory accounted for half of this total. By 1900, Cochituate had surpassed the rest of the town in population, with two-thirds of the 2000 total.

By 1910, the shoe industry declined in Cochituate and all of the shoe factories closed down. The unemployed were forced to seek work elsewhere or move. After World War I, Dudley Pond became a summer recreational area, and during the Depression, many of the cottages became permanent residences. In the northern end of town, farmers continued to work the land, but after World War II, the cornfields and market gardens began to disappear.

Town Code	Wayland became more accessible and attractive as a suburb as industries began to locate along the new Route 128 and the state began construction on the Massachusetts Turnpike.
Zoning Bylaws	In 1955, Raytheon built a large-scale industrial laboratory near the Center, which increased the need for housing. Many farms and large estates broke up and were replaced
Town Maps	by housing developments. The population soared to 13,000 by 1968. Since that time, the number of residents has leveled off.
Town Meeting	
Job Openings	The meadows and marshes along the ten-mile course of the Sudbury River through
Contact Us	Wayland have been kept relatively unspoiled and are now the object of private and public efforts to maintain them in their natural state. They are still full of wild life and are
Site Map	beautiful to see. They provide an open, rural setting and an attractive feature of what has become an almost purely residential town.
Usage Notice	Location: Wayland is a semi-rural community located in the MetroWest region of Eastern Massachusetts, in Middlesex County just 18 miles from Boston, 26 miles from Worcester and 203 miles from New York City. Wayland is bordered on the west by Sudbury and Framingham, on the south by Natick, on the north by Concord and Lincoln and on the east by Weston. Wayland is accessible and attractive as a suburb to the City of Boston and to the businesses and industries located along the Route 128 with convenient access to the Massachusetts Turnpike. The meadows and marshes along the ten-mile course of the Sudbury River through Wayland have been kept relatively unspoiled and are now the object of private and public efforts to maintain them in their natural state. They are still full of wild life and are beautiful to see. They provide an open, rural setting and contribute to the attractive features and uniqueness of this almost purely residential town. Wayland is the home of two public golf courses, Wayland Country Club and Sandy Burr Country Club both located on Route 27. There is a town beach located on Lake Cochituate that offers swimming and a boat launch to its residents and guests. Wayland is also fortunate to have other recreational areas such as Mill Pond for fishing, pine-forested picnic areas and many conservation areas for hiking and horse riding trails. In addition, Wayland promotes outdoors athletic activities and provides well equipped basketball courts, ten tennis courts, ice-skating areas, a swimming pool, and several playgrounds. The Wayland Public School system is regularly ranked as one of the top ten school systems in the Commonwealth of Massachusetts. The schools strive to maintain a strong academic curriculum. In addition, the Wayland Public School Children's Center provides full childcare service from 7:00 A.M. to 6:00 P.M. in a healthy and safe environment for children in grades K-5 every school day. Additional childcare programs are available during school vacations and the summer. The Town of Wayland is located in the MetroWest region, situated at the halfway point between Boston and Worcester. Wayland is just one of nine communities that comprise MetroWest, the others are Ashland, Framingham, Holliston, Hopkinton, Natick, Sherborn, Southborough and Sudbury. MetroWest is a region rich in history and natural beauty, and offers visitors and residents alike, a vast array of opportunities for such activities as shopping, sightseeing, dining and entertainment.

Attractions within MetroWest include Longfellow's WAYSIDE INN in Sudbury, the oldest continuously operating inn in America, and the peaceful Sudbury River, which provided waterpower for the grain and textile mills that once dotted its shores. The Framingham/Natick stretch of Route 9 features literally hundreds of retail establishments of all kinds as well as fine and casual dining, making it a premier shopping destination. Just bordering the MetroWest region is another premier shopping destination located in Wellesley, which offers a broad array of upscale dining and shopping, with many small shops and boutiques along Routes 135 and 116. Outdoor enthusiasts will appreciate the abundance of parks, forests, lakes and nature preserves in the region. History buffs can travel back in time to our country's earliest days when they visit nearby landmarks commemorating skirmishes that marked the beginning of the American Revolution. And art lovers will enjoy the variety of museums and galleries they'll find here.

Known as the "Crossroads of New England", MetroWest is easily accessible by air, rail and bus. Both Boston's Logan International Airport and the Worcester Regional Airport are just 30 minutes away, and the area is served by major highway interchanges - including Interstate 495 and 95, Route 9 and the Massachusetts Turnpike (Route 90).

Statistics:

Form of government: Open Town Meeting
County: Middlesex
Congressional District: 5th for Precincts 1, 3, and 4
Congressional District: 7th for Precinct 2
Land area: 15.28 square miles
Population: 13,949 (06/30/2003)
Number of households: 5,739 (6/30/2003)
School enrollment: 2,955 (10/2003)
Number of registered voters: 8,668 (11/18/2003)
Current tax rate: \$12.52 per \$1,000 (FY 2003)

(b) Licenses of 10 MHz blocks, including 10 MHz C block licenses reconfigured pursuant to Amendment of the Commission's Rules Regarding Installment Payment Financing for Personal Communications Services (PCS) Licensors, WT Docket No. 97-82, Sixth Re-

Making, WT Docket 97-82, 12 FCC Rcd 16436 (1997), as modified by Order on Reconsideration of the Second Report and Order, WT Docket 97-82, 13 FCC Rcd 8345 (1998), must serve with a signal level sufficient to provide adequate

census to determine the five-year con-
may elect to use the 2000 population
struction requirement. Failure by any
licensee to meet these requirements
and the licensee will be ineligible to re-
gain it.

[58 FR 59183, Nov. 8, 1993, as amended at 64 FR 26890, May 18, 1999; 65 FR 53636, Sept. 5, 2000]

Atlas & Marketing guide, 123rd Edition, at pages 38-39 ("BTA/MTA Map"). Rand and McNally organizes the 50 states and the District of Columbia into 47 MTAs and 487 BTAs. The BTA/MTA Map is available for public inspection at the Office of Engineering and Technology's Technical Information Center, 1405 17th Street, SW Washington, DC.

(2) Guam and the Northern Mariana Islands are licensed as a single MTA-like area.

(3) Puerto Rico and the United States Virgin Islands are licensed as a single MTA-like area.

ern Mariana Islands; Mayaguez/Agua-
dilla-Ponce, Puerto Rico; San Juan,
Puerto Rico; and the United States
Virgin Islands. The Mayaguez/Agua-
dilla-Ponce BTA-like service area con-
sists of the following municipalities:

Grider, Salinas, San German, Santa Isabel, Villalba, and Yauco. The San Juan BTA-like service area consists of all other municipios in Puerto Rico. [59 FR 32854, June 24, 1994; 59 FR 40835, Aug. 10, 1994; 63 FR 68952, Dec. 14, 1998; 65 FR 53636, Sept. 5, 2000]

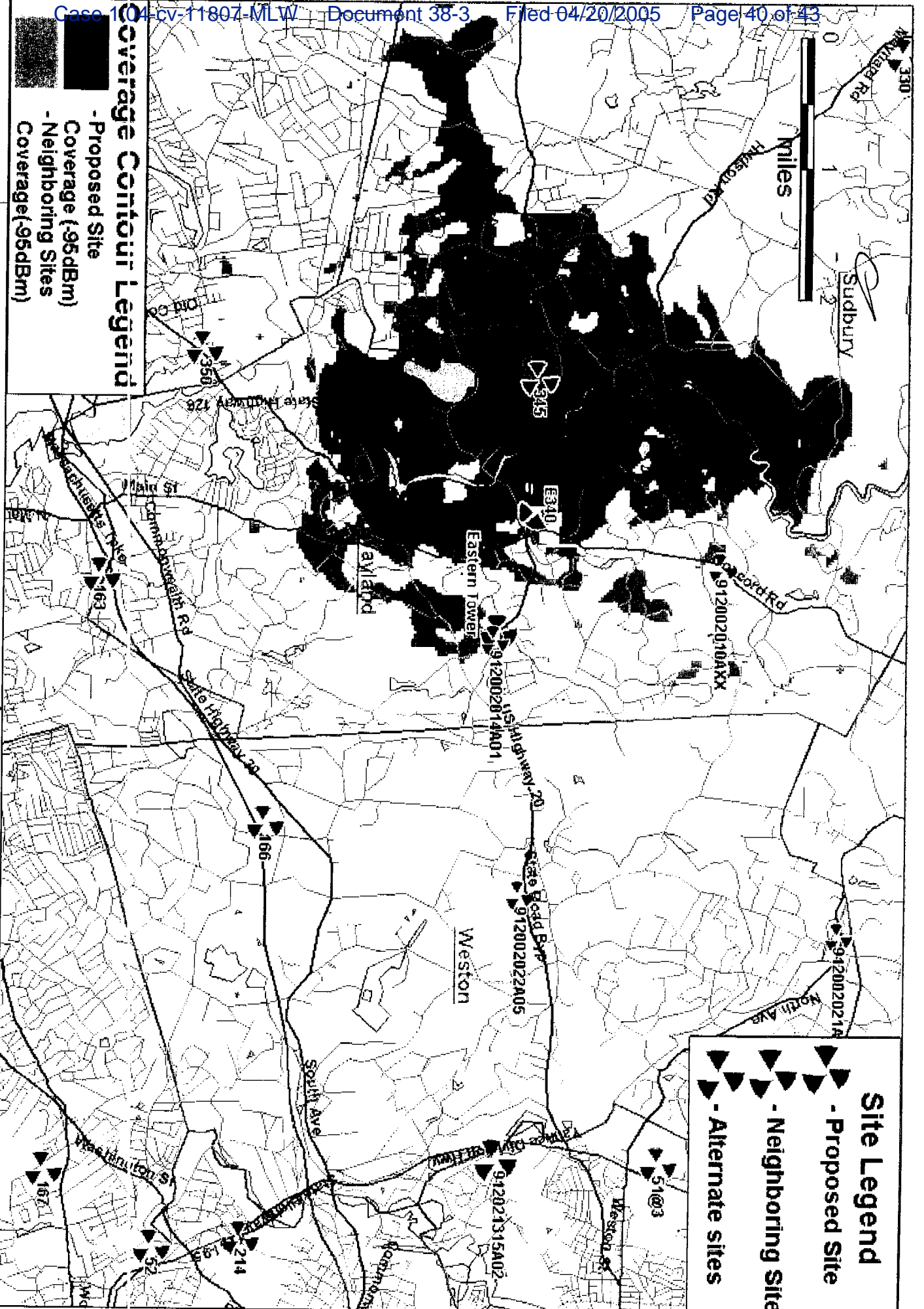
(a) Licensees of 30 MHz blocks must serve with a signal level sufficient to provide adequate service to at least one-third of the population in their licensed area within five years of being licensed and two-thirds of the population.

(a) Licensees of 30 MHz blocks must serve with a signal sufficient to provide adequate service to at least one-third of the population in their licensed area within five years of being licensed and two-thirds of the population.



Coverage Contour Legend
 - Proposed Site Coverage (-95dBm)
 - Neighboring Sites Coverage (-95dBm)

Miles



Site Legend
 - Proposed Site
 - Neighboring Sites
 - Alternate sites

Coverage from

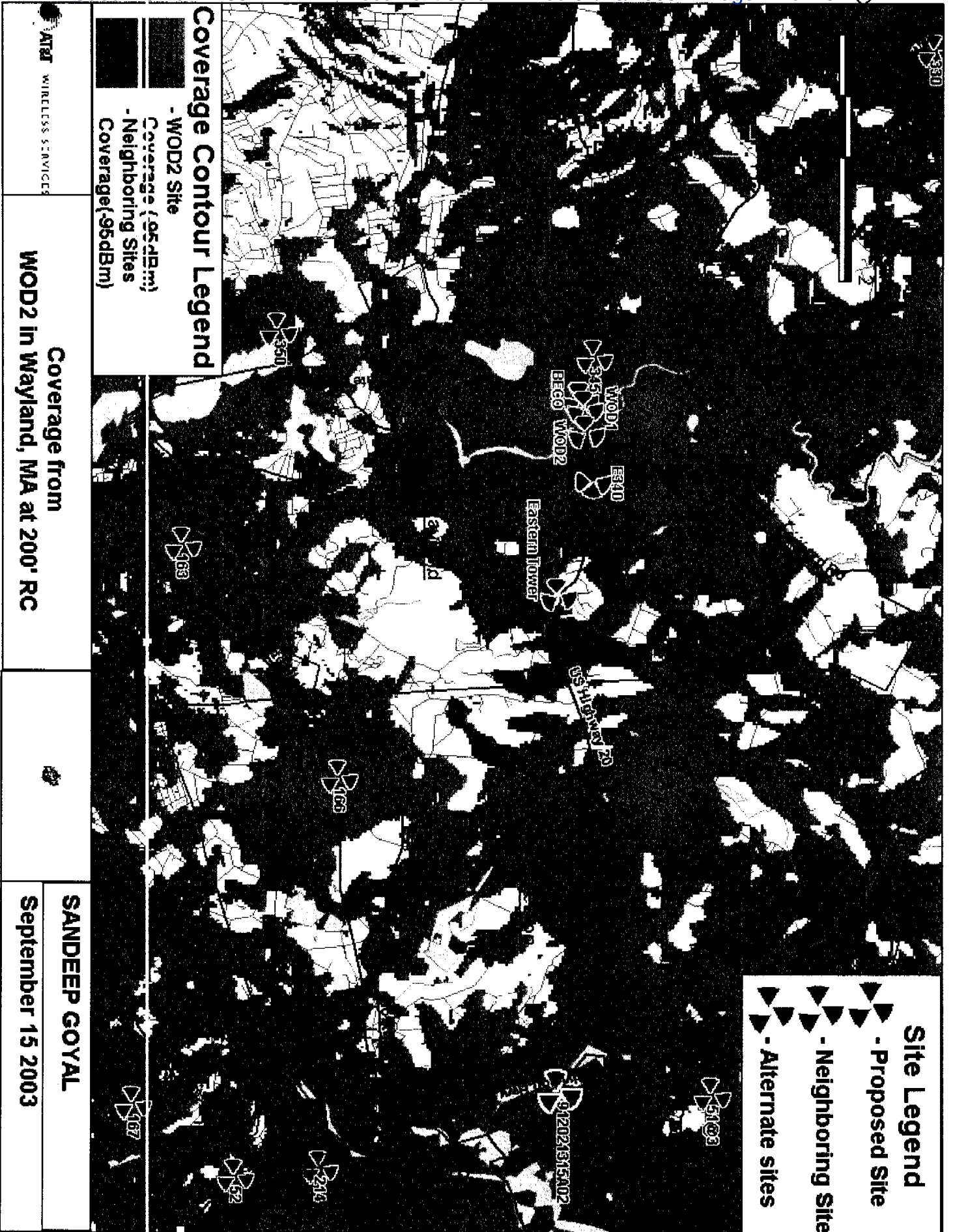
Sudbury Landfill site(345) Only at 121' RC

SANDEEP GOYAL

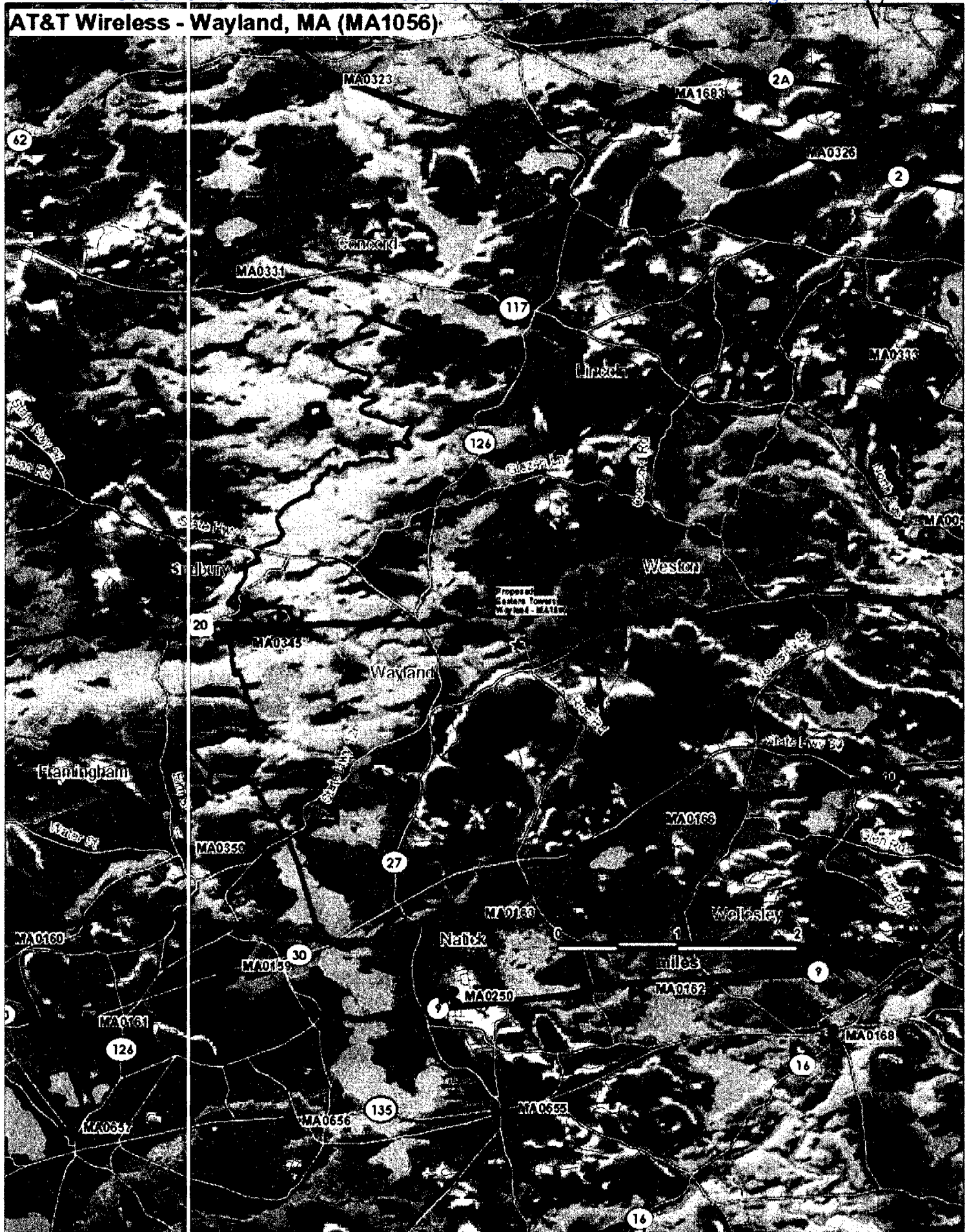
September 15 2003

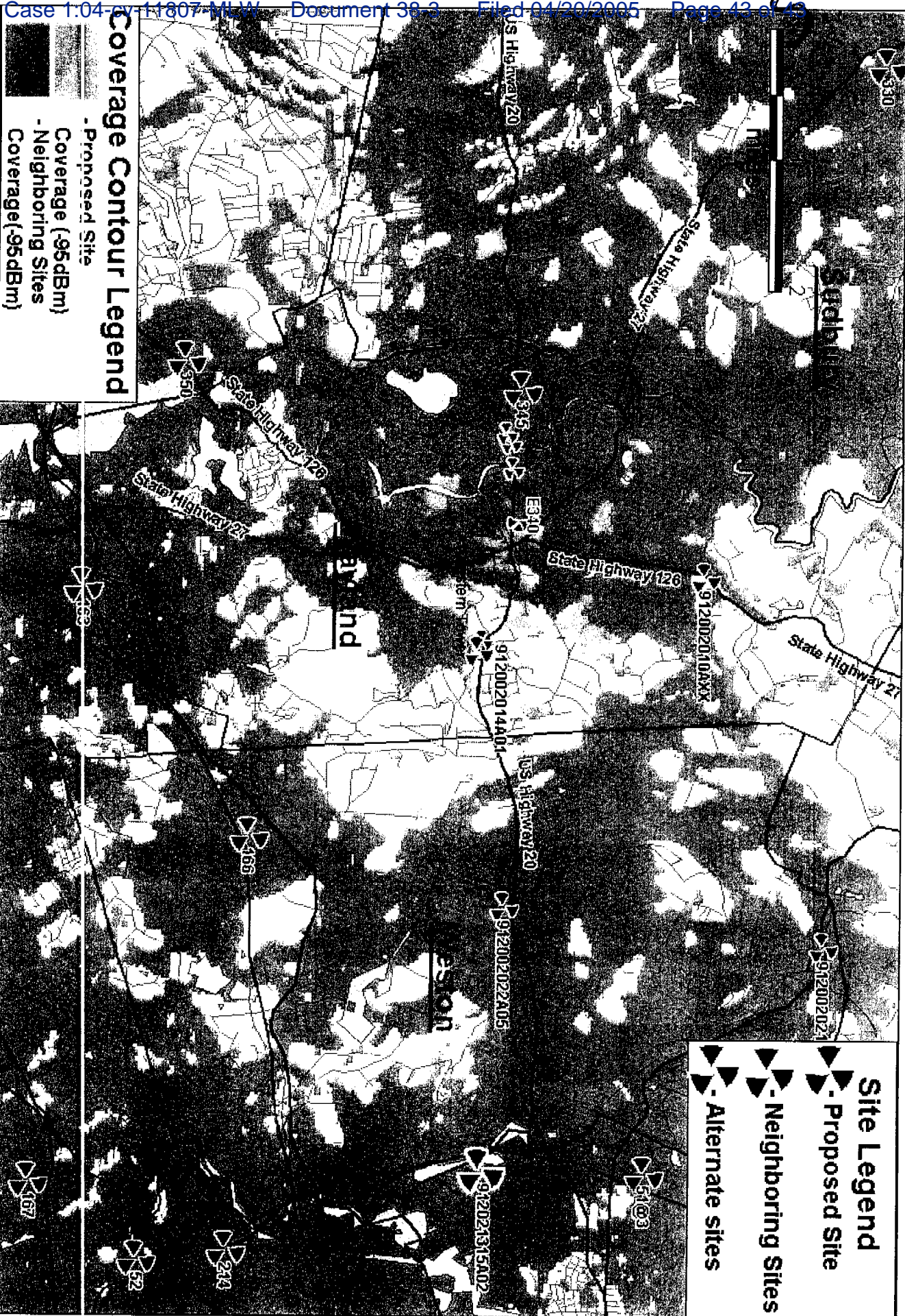
AT&T WIRELESS SERVICES

Q



AT&T Wireless - Wayland, MA (MA1056)





Site Legend

-Proposed Site

-Neighboring Sites

- Alternate sites

Coverage Contour Legend

- Proposed Site

Coverage (-95dBm)

-Neighboring Sites

Coverage(-95dBm)

Coverage from BECO site, Wayland, MA

Antenna Mounting Height: 122'

SANDEEP GOYAL

October 20 2003